THE EFFICACY OF A COGNITIVE BEHAVIOURAL TREATMENT PROGRAMME FOR STUDENTS WITH HIGH TEST-ANXIETY AND POOR STUDY SKILLS.

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Joanna .M. Capstick

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Abstract

The present study examined the efficacy of two-stage treatment programme consisting of anxiety management training and study-skills training, for students with high test-anxiety and poor coping skills. A total of nine students were divided into three groups and completed the Test Anxiety Inventory, Survey of Study Habits and Attitudes, and the State-Trait Anxiety Inventory in a multiple-baseline-across-groups format. All participants also responded to an Automatic Thoughts in Simulated Situations tape both pre- and post-treatment. The results were analysed initially by comparing the pre- and post-treatment aggregated participant means on each measure. The post-treatment participant mean was then examined against normative data on each measure. Secondly, the results were analysed to detect post-treatment changes in the therapeutic direction for each participant involved in the study. The results of the group means found a significant reduction post-treatment on all subscales of the pen and paper measures. This confirmed the predictions of the information-processing model's claim that this type of treatment programme is efficacious for all students with high test -anxiety and poor study skills. Further, the assumption that both negative codes and positive codes on the Automatic Thoughts in Simulated Situations paradigm would change significantly was supported, with the exception of positive statements. The groups mean results also confirmed the assumption that a two-stage treatment programme would reduce overloading the participants' with too much information, which has been problematic in previous research. Results from the individual analyses revealed the immense variance of the participants' responses to all measures. Not all participants' showed a clear change in the therapeutic direction, which suggests that the treatment programme was not efficacious for all of the participants. Based on these findings, further research is needed to explore the individuality of students within the high test - anxious and poor study skills population. Only then can a treatment programme be designed to meet the needs of this type of test-anxious student.

Introduction

1.1 General introduction

Anxiety is a somatic, cognitive, emotional and behavioural state that people can experience to differing degrees and in a variety of situations (Doan, Digregorio & Manuel, 1995). Whilst anxiety can be effective in facilitating problem-solving, much of the research focuses on anxiety as a negative phenomenon which can impair psychological well-being. Therefore, it is valuable to examine techniques that may result in the reduction of anxiety and help people to cope better in anxiety-provoking situations. The concept of test anxiety refers to individual differences in anxiety proneness in test situations (Spielberger, Gonzalez & Fletcher, 1979). Test anxiety is frequently defined as " a situation specific personality trait" (Zeidner & Shechter, 1994, p 3). In responding to examination stress, test anxious individuals are more likely to experience a) emotional reactions characterised by feelings of tension, and nervousness; b) worry cognitions that interfere with attention and c) arousal of the autonomic nervous system (Spielberger et al, 1979; Hembree, 1988; Zeidner & Shechter, 1994). Test anxious students have a propensity to view examinations as personally threatening and as such, respond with increased levels of state anxiety, self-depreciating cognitions, anticipatory failure attributions, and intense emotional reactions (Hembree, 1988). It has also been demonstrated that test anxiety plays a role in academic underachievement, where students who have the ability to perform well on exams, perform poorly due to their debilitating levels of anxiety (Hembree, 1998; Zeidner, 1998). Highly test-anxious students report varying degrees of fear, tension, butterflies, sweating, headaches, nausea, restless and worry, as well as a reduced ability to think clearly and remember material in an examination. Considering the suffering involved, along with the potential loss to society of contributions by students, effective treatment of test anxiety is extremely important from personal, economic and social viewpoints.

1.2 Pervasiveness and prevalence of test anxiety

A variety of examinations and evaluative situations are playing an increasing role in determining students' academic and occupational careers in modern society (Zeidner,

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1.1 General introduction

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1.2 Pervasiveness and prevalence of test anxiety

A variety of examinations and evaluative situations are playing an increasing role in determining students' academic and occupational careers in modern society (Zeidner,

1995). In fact, it is almost impossible to grow up in modern society without encountering some kind of test, whether it be a classroom test, an aptitude or achievement test or an occupational test (Zeidner, 1998). Sarason (1959, in Spielberger and Sarason, 1978), encaptured the increasing importance of test performance in contemporary society with his statement: " we live in a test conscious, test-giving culture in which the lives of people are in part determined by their test performance" (p 59). When one considers the many uses of tests in our culture, and the ways in which it can determine the lives of people who take them, it seems no surprise that the testing situation invokes anxiety in many individuals.

Test anxiety features prominently in the literature as a factor
outcomes such as poor cognitive performance, scholastic underachievement, anc psychological distress (Hembree, 1988). Indeed, many students seem to have the ability to perform well on exams, but their capacities are misrepresented because of their debilitating levels of anxiety (Register, Beckham, May & Gustafson, 1991). Moreover, test anxiety results in crucial real-life consequences for many examinees. Over 60 years ago, Charles Brown (1938 in Spielberger and Sarason, 1978) called attention the real life consequences of test anxiety for college students with his comments on the causes of two student suicides: "one of these was definitely due to worry over an approaching examination and the other presumably was...these incidents show that students are taking their examinations more seriously, and that the emotional reactions of students before examinations is an important problem" (p 12). A number of studies have provided concrete evidence of the toll anxiety takes on student performance and well being (Spielberger & Vagg, 1995). In addition, the loss to society of the full contribution of capable students because of anxiety related under-achievement outlines an important health problem in education (Zeidner, 1998). How prevalent is test anxiety in modern society?

Data on the incidence and prevalence of test anxiety in the literature is sparse due to definitional issues and methodological problems (Zeidner, 1998). However, based on a number of *estimates* of the prevalence rates of test anxiety in school and university students, test anxiety appears to be reasonably widespread (Spielberger & Vagg, 1995). Hill and Wigfield (1984) projected that two or three children in a typical classroom are highly anxious, with as many as 10 million secondary school students in the United States

performing less well than expected on tests because of anxiety and deficiencies in test-taking strategies. Test anxiety also appears to be pervasive amongst university students, with estimated prevalence rates anywhere between 15% (Register et al, 1991; Hill and Wigfield, 1984; Zeidner, 1998) and 20% (Eysenck, 1965 in Zeidner, 1998). However, it seems that most studies have attempted to predict prevalence rates of test anxiety from incidental samples that may not be representative of the target population. Large-scale epidemiological surveys of test anxiety appear to be lacking and are needed to accurately determine the prevalence rates of test anxiety.

1.3 Stress, anxiety and test anxiety: concepts and distinctions

Test anxiety may be viewed as a subset of the broader domain of the phenomena of stress and anxiety. In order to place test anxiety in a broader theoretical framework, the concepts of stress and anxiety will be clarified and their interrelationships discussed.

The concepts of stress and anxiety have been discussed diversely in the literature with varying definitions and outcomes (Sarason, 1984). For example, stress has been defined as a stimulus, a hypothetical state, and as a response. It seems that the preferred definitions of stress employ aspects of the environment, the individual, and how the two interact. Sarason (1984) views stress from a cognitive perspective where he defines it as "a call for action, a person's awareness of the need to do something about a given state of affairs" (p 930). These calls for action can result in either task-relevant or task-irrelevant thinking. It has been proposed that task-relevant thinking occurs when the individual perceives themselves as having personal control over the situation, whereas task-irrelevant thinking may occur when the calls for action are imposed and are perceived as insurmountable (Meichenbaum & Butler, 1980, in Sarason, 1984).

The current dominant theory of stress, the transactional model (Lazarus & Folkman, 1984 in Zeidner, 1998), conceptualizes stress as being a transaction between the person and the environment. The theory suggests that stress is a process where the environment challenges a person's wellbeing. This leads to an appraisal and response to the threat by that person. Therefore it appears that it is not the specific event *per se* that causes an individual to experience stress, but rather their cognitive appraisal of that event. Endler

and Parker (1990, in Zeidner, 1998) further hypothesize that environmental stressors may have different outcomes depending on an individual's personal characteristics (e.g. optimism, self-efficacy and trait anxiety).

The definition of and criteria for anxiety have been widely disagreed about. Anxiety has been conceptualized as a stimulus condition, as a probability of a harmful future outcome, and as a response to a stressful situation (Zeidner, 1998). Disagreement over the meaning of anxiety has occurred due to the word being almost simultaneously used to refer to observable events (breathing rates, heart rates, and self-reports) and to a hypothetical internal state (Sarason, 1978). Furthermore, there is conceptual confusion with respect to the word *anxiety* as there is a lack of distinction between anx
as a transitory emotional state (Spielberger, 1975).

Sarason (1978) differentiates between the concepts of stress and anxiety. He theorises that stress is intrinsic to the interpretation of a situation whereas anxiety is a response to a perceived threat and inability to cope with the situation in a satisfactory manner. Zeidner (1998) proposes the core theme with respect to anxiety, is danger or threat to a person's self-esteem when faced with an unpredictable threat. Some of the major attributes of anxiety as proposed by Sarason (1978, 1990) are: The situation is appraised by the individual as being challenging and threatening; the individual perceives themselves as being ineffective to cope with the task at hand; the individual concentrates on undesirable consequences of personal inadequacy and or on undesirable outcomes; the individual focuses on self-deprecatory thoughts that hinder task-relevant cognitive progress; the individual expects and anticipates failure.

Beck, Emery and Greenberg (1985 in Salkovskis, 1996, pg. 51) provide a broad conceptualisation of the cognitive component of anxiety. This is epitomized in the following equation:

$$\text{Anxiety} = \frac{\text{Perceived probability of threat X Perceived cost/Awfulness of danger}}{\text{Perceived ability to cope with danger + perceived rescue factors}}$$

According to Beck et al (1985 in Salkovskis, 1996) an increase in anxiety results from an interaction with the perceived probability of threat and the meaning that person associates

to the danger concerned. For example, some people may believe that they will faint in a certain situation i.e. a crowded room, but will not feel especially anxious unless they believe that fainting is a dangerous thing to do (i.e. they will lose social status, or will die from loss of breath). This also accounts for situations where a person knows that a negative outcome is unlikely to occur, but the threat is perceived as too awful to risk (Salkovskis, 1996). This risk and cost combination is further accentuated by the degree to which people perceive whether they would be able to cope with the danger should it actually occur. This includes their own intrinsic coping resources, as well as external factors such as help from people close to them. It is suggested that people who suffer from anxiety problems engage in distortions of one of these factors or as a combination (Salkovskis, 1996).

According to cognitive theory, there are at least three components involved in the maintenance of anxiety disorders (Beck et al, 1985 in Salkovskis, 1996). Figure 1 illustrates the three cycles of selective attention, physiological change and changes in behaviour, which are involved in the maintenance of anxiety.

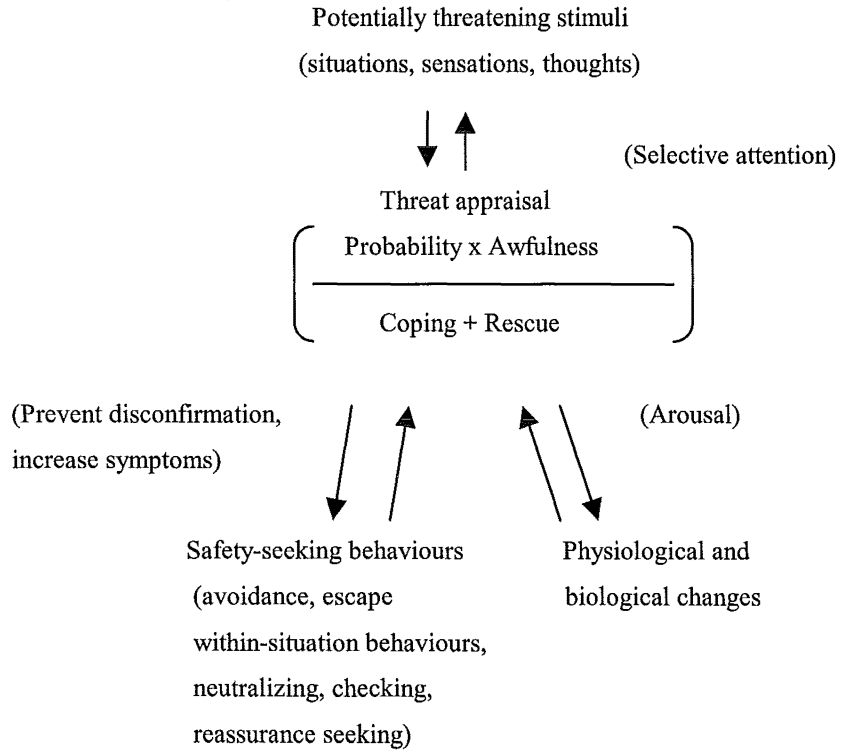

FIGURE 1: The way in which psychological problems can perpetuate threat cognitions and therefore maintain anxiety problems (Salkovskis, 1996, p 53).

Selective attention is where people who believe themselves to be in danger are hyper sensitive to observing stimuli associated with that perceived danger, and less sensitive to other stimuli. For example, a person who is anxious about spiders will scan a room for signs of spider webs. If an anxious person notices signs of danger, it is likely they will infer that the probability of danger has increased thereby reinforcing their initial concerns. *Physiological change* refers to the direct and indirect effects that anxiety can have on the body. If danger is associated with bodily sensations (such as an increased heart rate, sweating, shaking) then the person's perception of danger is increased (Salkovskis, 1996). For example, if a socially anxious person is afraid others will notice their anxiety, but as a result begins to flush and sweat, then these bodily sensations are heightening their perception of threat. *Changes in behaviour* often occur as a r
danger and prevent disconfirmation of beliefs about the threat. These changes, s
avoidance behaviour, augment preoccupation with threat and thus maintain anxiety disorders (Salkovskis, 1996).

As with the case for the stress and anxiety constructs, there is conceptual confusion with regard to the test anxiety construct. Zeidner (1998) refers to test anxiety as "a set of phenomenological, physiological, and behavioural responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation" (p 18). Test anxious students are proposed to view examinations and evaluative situations as personally threatening (Spielberger & Sarason, 1978; Zeidner & Shechter, 1994; Zeidner, 1995) and respond to the threat with heightened levels of state anxiety (Zeidner & Shechter, 1994), more intense emotional reactions (Spielberger & Vagg, 1984;Spielberger & Vagg, 1995), reduced feelings of self-efficacy (Zeidner, 1998) and anticipatory failure attributions (Hembree, 1988).

The term test anxiety has been used to refer to several connected yet different constructs. This includes stressful evaluative stimuli and contexts, individual differences in anxiety proneness (trait anxiety) and changing anxiety states occurring in an examination situation (state anxiety) (Zeidner, 1998). It remains unclear as to whether test anxiety is best conceptualized as a relatively stable personality trait, or as a transitory emotional state. However, the definition proposed by Spielberger (1972 in Spielberger et al., 1978) appears to be the most widely accepted (Spielberger et al, 1979, 1987; Zeidner & Shechter, 1994; Zeider, 1995, 1998). It expresses test anxiety as " a situation specific

personality trait" (p 168). Sarason (1984) reinforces the importance of personality in regard to the test anxiety construct by referring to test anxiety as "a widely studied personality variable because it provides a measure of personal salience of a definable class of threatening situations, those in which people are evaluated" (pg 929). Wessel and Mersch (1994) stress that the definition of test anxiety includes the individual perception of threat or danger in an evaluative situation. This parallels Beck et al's (1985 in Salkovskis, 1996) conceptualization of anxiety disorders previously discussed. Thus an individual would seem to be vulnerable to test anxiety in any situation that they *perceive* as evaluative in nature. Spielberger et al, (1978) propose that the nature of examination situations are threatening and result in heightened state anxiety for many students, but the extent of the response does indeed depend on the student's pe
threat the examination evokes. Zeidner (1998) suggests that test anxious studer constantly perceive a wide range of situations as evaluative, whilst Carver, Peterson, Follansbee and Scheier (1983) propose that test anxiety is a particular case of a broader *evaluation anxiety* construct. In fact, Wine (1980) has gone so far as to suggest that the term test anxiety is a broad term with much excess meaning, and thus is conceptually redundant.

In line with the proposal of Caver et al (1983) that test anxiety is part of the evaluation anxiety construct, Wessel and Mersch (1994) examined the relationship between social anxiety and test anxiety. It seems that the range of situations that highly test anxious students perceive as evaluative in nature is not limited to formal examinations, but social-evaluative cues as well. Indeed, research by Beidel and Turner (1988 in Wessel & Mersch, 1994) reported that 60% of the highly test anxious children in their study, met the DSM-111 criteria for overanxious disorder and/or social phobia. Further, in Wessel and Merch's (1994) study, their cognitive behavioural treatment programme was effective in reducing test anxiety as well as social anxiety, phobic anxiety and phobic avoidance, suggesting these constructs are closely related. Hembree's (1988) analysis of the literature demonstrated that the construct of test anxiety is related directly to general anxiety, social anxiety, state anxiety and trait anxiety, although it should be noted that the correlations were stronger for high school populations than for college students. The various forms of social-evaluation anxiety differentiated in the literature (math anxiety, sports anxiety, speech anxiety, audience anxiety, social anxiety) have similar structural similarities (Zeidner, 1998). Each form of social-evaluation anxiety share the properties of the

perceived possibility of failure and the expectancy of resultant disapproval by those who are evaluating the person to some standard (e.g. achievement or normative behaviour). In addition, the social-evaluative anxieties all include the components of worry, tension, arousal and avoidance behaviours (Zeidner, 1998), which are also some of the key components of test anxiety (Spielberger & Vagg, 1984).

The fear of negative evaluation seems a powerful determinant in each of the social-evaluative anxieties. This is true for the test anxiety construct, where high test- anxious students display a strong fear of negative elevation and fear of failure (Hembree, 1988). High test anxiety has also been correlated significantly with less social behaviour, a lower sense of well-being, less self-acceptance and less self-control
anxiety (Hembree, 1988). This does not seem surprising given the finding that t
anxiety shares many common properties with other social disorders. Zeidner (1998) suggests that test anxiety may be distinguished from the other forms of social-evaluation anxiety through the stimulus that evokes the person to perceive the situation as personally threatening. Thus, as well as the threat of negative evaluation, anxiety is evoked through the content of the situation. For example, a person with sports anxiety would have anxiety about their athletic performance, whilst a person with test anxiety would have anxiety about their test performance. However, the common properties between the social-evaluative anxieties and the test anxiety construct seems compelling evidence for the notion that test anxiety may best be theorized under the broader term of evaluation anxiety (Carver et al, 1983). However, Zeidner (1998) proposes that the term test anxiety is useful in that it is accepted in the literature to "denote the phenomenology under construction" (p 18).

1.4 The Facets of Test Anxiety

Test anxiety is currently viewed as a "complex multidimensional construct, comprised of a cluster of interacting components and reactions (Spielberger & Vagg, 1984, p 29). Although a number of attempts have been made in determining the dimensionality of test anxiety and its key facets, it seems that there is little agreement on the exact number of facets or components of test anxiety (Hembree, 1988). However, researchers have differentiated amongst cognitive facets (worry, irrelevant thinking), affective facets

(tension, bodily reaction, perceived arousal), and behavioural facets (deficits in study and test-taking skills) (Sarason, 1984; Zeidner, 1998). It seems that test anxious students can experience all or some of these test anxiety reactions – the anxiety response will be determined by the qualities and personal experience of the individual, the nature of the problem, and the situational factors affecting the level of anxiety induced.

1.4.1. Cognitive facets

Recent research suggests that cognitive aspects of anxiety (negative performance expectations, ruminations over the future consequences of failure, lack of confidence, beliefs of inadequacy over test situations, self-focused attenti
important response characteristics of highly test anxious students (Spielberger &
1995; Sarason, 1984; Zeidner, 1998). There appear to be two lines of research relating to the cognitive facet of test anxiety: A) Research into cognitive excesses (excess cognitive overload), and B) Research into cognitive deficits (reduction in cognitive processes such as attention, memory or retrieval).

1.4.1.1 Cognitive excesses

In the context of test anxiety research, worry has been referred to as a cognitive concern over performance (Sapp, 1994), possible failure and the perceived consequences of failing (Bauman and Melnyk, 1994). Liebert and Morris (1967 in Spielberger et al, 1978) described worry as "primarily cognitive concern about the consequences of failure" (p 173). Thus, rather than engage in task-orientated thinking, test anxious students become concerned with the implications of failure. In particular, worry cognitions are aroused when a person perceives their ability to cope with the situational demands as being inadequate (Sarason, 1984). It is proposed that worry thoughts may lead to self-directed attention rather than task-directed attention in the testing situation (Kalechstein et al, 1988). Cognitive-attentional theories of test anxiety assume that the negative, self-critical, ruminative thoughts interfere with task- relevant thinking and cause lower performance when challenged with an evaluative stressor (Blankstein et al, 1990; Spielberger et al, 1976; Wessel and Mersch, 1994). A study by Vagg and Papsdorf (1993 in Spielberger & Vagg, 1995) found a significant correlation between worry and academic performance, confirming the above assumption that worry can cause lower

performance in a testing situation. Sarason (1965) concluded from his research that high test-anxious students are more self-centered and self-critical than low-test anxious students are, and more likely to emit personalized, self-critical worry responses that interfere with attention and test performance. The low test-anxious person on the other hand is believed to engage in task-relevant cognitions which enhance efficient task completion (Melnyk, 1994).

Research suggests that highly test anxious individuals report a greater number and higher frequency of worry thoughts and negative self-statements (Register, Beckham, May & Gustafson, 1991). Results from an experiment by Ganzer (1968 in Sarason, 1984) showed that whilst performing on an intellectual task, high test anxio
self-deprecatory thoughts, more task irrelevant comments, and felt less confiden
their lower test anxious counterparts. Eysenck (1984) hypothesized that an important determinant of the frequency and duration of worry occurrences, is worry clusters in long-term memory. These worry clusters include thoughts and/or images based on memories of previous situations, which the person perceived as threatening. It has been proposed that individuals who are highly test anxious may have more complex worry clusters compared to low test anxious individuals, and therefore worry more (Zeidner, 1998). These worry clusters may "strengthen the relevant associated semantic network and thus fortify both the predisposition to detect threat in the future and the habitual triggering of these internal worry-generating sequences upon the next occurrence of related evaluative threat cues" (Zeidner, 1998, p 32). It is believed that individuals with a tendency to worry more, have developed a learned response through experience of failure, through feedback from others, and from environmental circumstances (Sarason, 1984).

Research has confirmed that high test- anxious individuals have a tendency to become pre-occupied and self-focussed in the examination situation (Everson, Millsap, Browne, 1989). This in turn may interfere with the anxious individual's perception and appraisal of the situation – lending them to overestimate the situation as being harmful or threatening and thus increasing state anxiety. In particular, high test anxious individuals are shown to be pre-occupied with negative thoughts about the self, including their academic competence, ability to cope, and expected outcomes (Blankstein et al, 1990). However, the literature on the relationship between test anxiety and negative thoughts has not yielded consistent results. Some studies (Klinger, 1984, in Zeidner, 1998) have failed to

find a positive association between test anxiety and negative thoughts during exams, whereas others suggest that it is not the frequency of negative thoughts that are important, but the emission of positive thoughts in the testing situation that differentiate high and low test anxious individuals (Blankstein, et al, 1990). Although inconsistent, the literature places an important emphasis on the cognitive excesses of worry and negative self-ruminative thoughts prevalent in high test- anxious individuals. Indeed, one of the main aims in treatment programmes for highly test-anxious individuals is to reduce excess negative cognitions and to increase positive, task-directed thinking (Hembree, 1988).

1.4.1.2 Cognitive deficits

In the view of present theories, cognitive excesses are responsible for cognitive in that attention to worrisome thoughts leads to a reduction in memory and reduced performance in examination situations (Zeidner, 1995). Cognitive attentional models suggest that test anxiety may disrupt performance at the acquisition stage, disrupting the process where new information is coded (Sarason, 1984). Thus, new information that is required to be learned in preparation for an impending examination is not processed efficiently. It is proposed that the worry component of test anxiety demands the attention of the individual, and thus reduces their ability to attend and register new information (Zeidner, 1998). Indeed, Hembree (1988) determined that high test- anxious individuals report more encoding problems than low test- anxious individuals. With respect to the effects of test anxiety on memory, there is evidence that anxious arousal causes a reduction in the cognitive capacity available for the task at hand (Eysenck, 1983 in Zeidner, 1998). It is predicted that test anxiety results in a reduction of short-term and working memory, and also impairs the retention of memory in long-term storage (Zeidner, 1998).

It should be noted that Naveh – Benjamin, McKeachie & Lin (1987) distinguish between test anxious students with good and those with poor study habits. One of their studies concluded that one of the causes of poor academic performance of highly test- anxious students is a deficit in organizing the material learned and in assimilating new information into existing memory structures (Naveh-Benjamin et al, 1987). However, it was found that not all students with test anxiety suffer from problems in organizing and encoding. Those students with good study habits can learn the material as efficiently as

non-test anxious individuals; the reason for their poor performance is related to problems in retrieving information learned. Conversely, students with test anxiety and poor study habits were found to have deficits in encoding and organizing material even in situations that were non-evaluative (Naveh-Benjamin et al, 1987). This suggests that cognitive excesses may not be the only interfering component that leads to encoding and memory problems in test anxious students. It may be that some students just do not know how to study effectively.

The finding that test- anxious students perform more poorly than non-test- anxious students is most commonly linked to cognitive deficits in the retrieval process of information from memory. This occurrence is referred to as t
hypothesis" (Covington & Omelich, 1987 in Zeidner, 1998) where anxiety redu
performance by blocking previously learned information. It is assumed that anxiety obstructs performance temporarily rather than inhibiting originally learned material altogether. For example, a highly test anxious student may know all of the answers immediately before and immediately after the test, but can not retrieve the information in the testing phase. According to Naveh-Benjamin et al (1987), the anxiety blockage hypothesis would only relate to high test- anxious students with good study habits – the hypothesis assumes that students had the ability to initially encode the information into memory prior to the testing experience. For this type of test anxious student, the problems in retrieval are predicted to be due to worries about their abilities and performance, which in turn interfere with effective retrieval of the material (Sarason, 1984; Navah-Benjamin et al, 1987).

1.4.2. Affective facets

Affective facets associated with test anxiety consist of both a) objective somatic symptoms of physiological arousal, and b) the subjective feelings of emotional arousal and tension (Zeidner, 1998). Emotionality is consistently viewed in the literature as being a key component of test anxiety (Hembree, 1988; Sapp; 1994; Blankstein et al, 1990; Spielberger et al, 1978; Sarason, 1984), and is frequently compared to the key component of worry in terms of causal mechanisms and outcomes (Hembree, 1988; Russel & Lent, 1982; Wessel & Mersch, 1994). Emotionality is or includes a physiological arousal response to anxiety (Blankstein, Flett, Watson, Koledin, 1990; Sapp, 1994), although it

does involve cognitive processes to some degree. Emotionality involves some attention and interpretation of the physiological arousal experienced by the individual (Zeidner, 1998). In fact, studies suggest that the attention given to physiological arousal distracts the individual in a test situation, and is more debilitating to performance than the arousal itself (Register et al, 1991). A study by Holroyd (1978, in Zeidner, 1998) compared the heart rate, heart rate variability, skin conductance level and skin resistance of 72 low and high test-anxious females. It was found that due to the stress of the testing situation, all of the four physiological measures produced changes in the participants. The only difference in change between the low and high test- anxious females was found in heart rate levels. Moreover, the high tests- anxious females *reported* higher levels of state anxiety and worry than their low test anxious counterparts – even though correspond to actual differences in autonomic activity (Holroyd, 1978, in Zeidne). Accordingly, it has been suggested that the term emotionality be used to refer to an individual's awareness of physiological changes, as opposed to actual physiological arousal (Sarason, 1984; Zeidner, 1998).

1.4.2.1 Objective somatic symptoms

Anxiety involves increased physiological arousal of the autonomic nervous system (Suinn, 1990). Autonomic arousal is frequently cited as a dominant response of individuals in an evaluative situation, such as hands or body perspiring, heart beating fast, tense stomach, dryness in the mouth, or hands and body trembling (Sapp, 1994). The sympathetic nervous system is also associated with the physiological responses observed in the examination situation (Suinn, 1990). When under stress, arousal of the sympathetic nervous system results in increased respiration, heart rate, pulse, temperature, blood sugar, sweat gland secretion, dilation of eyes, and constriction of blood vessels and reduced blood flow to the skin (Zeidner, 1998). This "fight-flight" response (Cannon, in Suinn, 1990) is considered a basic response to stress. Physiological arousal is experienced by those undergoing examinations (Spielberger et al, 1978; Sarason, 1984; Everson, Millsap & Browne, 1989). However, as mentioned previously, when these objective somatic symptoms are monitored in the testing situation, high- and low- test anxious groups can not be consistently identified on the basis of their physiological responses alone (Zeidner, 1998).

1.4.2.2 Emotionality

Emotionality and worry are considered to be two major components of test anxiety (Sapp, 1994). In order to convey the attributes of the emotionality component of test anxiety, emotionality will be compared with the worry component of test anxiety in terms of response cues, temporal patterns, and academic performance.

Emotionality is primarily a behavioural component of test anxiety, a behavioural response (Sapp, 1994) whereas worry is considered a cognitive component, or a cognitive response to test anxiety (Blankstein et al, 1991). Current research suggests that emotionality is evoked mostly by external cues such as walking into an exam
examiner (Sarason, 1984). Conversely, worry cognitions are believed to be evok
internal cues, such as negative appraisals of performance, self-doubt, and perceptions of the examination as threatening and harmful to the individual (Blankstein et al, 1990).

Emotionality and worry are deemed to have differing temporal patterns within the test situation (Spielberger et al, 1976; Zeidner, 1998). Emotionality is believed to increase significantly immediately prior to an examination and then gradually decrease as the examination progresses (Spielberger et al, 1976). Although, emotionality levels can remain stable throughout an examination if the nature of the task is complex (Zeidner, 1998). This would seem to be related to state anxiety, where both emotionality and state anxiety have been found to increase in situations of stress but decrease as a function of relaxation (Spielberger et al, 1976). It also would suggest that emotionally is indeed evoked by external cues rather than internal cues. Once the external cues have been withdrawn, the emotional arousal declines. On the other hand, the worry component of test anxiety has been shown to maintain itself throughout the entire testing phase, and may be aroused days before and remain days after an examination (Spielberger, et al, 1976; Zeidner, 1998). This suggests that worry is related to internal cues as worry cognitions persist when external cues are eliminated.

Current literature supports the notion that emotionality is not consistently related to academic performance (Spielberger et al, 1976; Spielberger et al, 1978; Hembree, 1988; Sapp, 1994; Zeidner, 1998). The worry component of test anxiety has been found to be negatively and consistently related to performance on a variety of tasks (Spielberger et al;

1976; Hembree; 1988; Zeidner, 1988). Hembree (1988) classified 13 studies where worry and emotionality were found to be related to academic achievement. It was determined that the effect size for worry was twice that for emotionality (Hembree, 1988), confirming suggestions that worry is more strongly related to academic performance than emotionality. Research by Doctor and Altman (1969 in Spielberger et al, 1976) found a negative correlation between emotionality and academic performance, but only with participants who scored low on the worry scale of the Test Anxiety Scale (Sarason, 1972). Subsequent research has suggested that that the effect of emotionality on academic performance varies with the level of worry experienced by the individual. It seems that contrary to Doctor and Altman's findings (1969 in Spielberger et al, 1976), emotionality has been found to be unrelated to performance at low levels o
worry, high levels of emotionality impair performance (Zeidner, 1998). Sapp (19
suggests that emotionality can actually enhance academic performance if an individual does not direct their attention towards the physiological arousal. Indeed, research has proposed a distinction between facilitating and debilitating anxiety, where facilitating anxiety enhances academic performance and debilitating anxiety diminishes academic performance (Hembree, 1988). In line with the research (Zeidner, 1998) that both high and low test anxious individuals objectively measure the same degree of somatic symptoms, it would suggest that it is the individuals' interpretation of the anxious arousal that determines the extent to which the effects will be debilitating or facilitating on academic performance.

1.4.3 Behavioural facets

Aside from cognitive and affective facets, test anxiety may be expressed in terms of 'behavioural acts'. The key behavioural expressions of test anxiety are deficits in study and test taking skills.

Test - anxious students tend to have poor study habits (Hembree, 1988; Spielberger & Vagg, 1984; Everson et al, 1989; Naveh-Benjamin et al, 1987). These students tend to have behavioural deficits in a variety of academic skills including studying for examinations, taking and organising notes, and using study time effectively (Zeidner, 1998). Research suggests that the poor academic performance of highly test - anxious students is due, in part, to inadequate study skills (Naveh-Benjamin, 1987). Spielberger,

Gonzalez and Fletcher (1979) determined that study habits correlate negatively with test anxiety and positively with academic performance. However, as previously mentioned, not all test-anxious students have deficient study skills; one type have high test- anxiety and good study skills whilst the second type includes those with poor study skills who have problems in all stages of processing and knowledge acquisition (Naveh-Benjamin, 1987).

Although poor study habits contribute to some high test-anxious individual's test performance, Spielberger and Vagg (1984) maintain that a deficit in test-taking skills also can lead to a detrimental performance. Inadequate test-taking skills are proposed to interfere with understanding the test questions and retrieval o
which leads to debilitating reductions in the student's ability to organise and con material they may know (Spielberger & Vagg, 1984). Naveh-Benjamin (1987) reports that poor test-taking skills may be a determinant of the worry cognitions observed in test-anxious individuals. Spielberger and Vagg (1984) proposed that high test-anxious students with poor test-taking abilities might worry about "falling behind, scold themselves for forgetting the answers, and fearfully recall similar, previous test situations that ended in disaster" (p 213). It seems unclear as to whether the performance decrements in this type of test anxious student can be attributed to intrusive worry cognitions about their inadequate test performance, or alternatively, attributed to poor test-taking skills which are further debilitated by intrusive worry thoughts.

1.5 Models of test anxiety

Although a wide range of theoretical models have been conceptualised to account for the multivariate nature of test anxiety, the more current and influential models in the literature will be presented. In the past, test anxiety has been conceptualized as comprising of two mutually exclusive models. Firstly, the cognitive-attentional interference model assumes that anxiety interferes with the ability to retrieve and use previously learned information (Everson, Millsap, Browne, 1989). Secondly, the deficit hypothesis assumes that poor performance observed in test anxious students is attributable directly to skill deficits (Everson et al. 1989). Both the cognitive-attentional model and the skills-deficit model associate test anxiety with some form of deficit –

attentional deficit in one model and academic skill deficit in the other. The information processing model of test anxiety amalgamates the cognitive-attentional and skills deficits models to support the notion of two types of test-anxious students (Noveh-Benjamin et al, (1987). Finally, the integrative transactional model of test anxiety which proposes that a number of key elements interact between a person and an evaluative situation (Zeidner, 1998), will be discussed.

1.5.1. Cognitive-attentional (interference) model

Current test anxiety theory has been influenced by a "cognitive-attentional" or "interference" perspective (Sarason, 1980; Zeidner, 1998). Tl
performance differences that are found between high and low test anxious stude
caused by differences in attentional focus. The cognitive-attention model postulates that anxiety during examinations interferes with students' ability to retrieve and use previously learned information (Everson et al, 1989) because anxiety causes a shift in attention focus from stored information to anxiety systems. This position maintains that emotional or physical reactivity does not capture the important differences between high and low anxious students. Rather, the differences lie in the cognitive structures and the presence of self-denying thoughts, worry, and cognitive interference (Sarason, 1980).

Cognitive-attentional theory explains the anxiety-performance relationship by the presence of interference (Wine, 1980). *Task generated interference* refers to the tendency to be distracted by irrelevant aspects of the task (Russel & Lent, 1982). Examples of task-generated interference include a person's inability to leave an unresolved problem or having a preoccupation with time limits (Register et al, 1991). Task-generated interference may also reduce effective problem solving strategies. This notion has been supported through the finding that high test-anxious individuals appear to use poorer problem-solving strategies (Wessel at al, 1994). A further cognitive-attention variable that has been suggested to contribute to performance in evaluative situations is *task-irrelevant thinking* (Smith, Arnkoff, Wright, 1990). A study by Kata and Chassin (1985 in Wessel et al 1994) reported that high test-anxious students not only experienced the variable of worry in an evaluative situation, but also more off-task thoughts, more difficulties in concentrating and a greater desire to escape testing situations than low test-anxious students.

It has been hypothesized that highly test anxious students become self-focused in an examination setting, and this self-attention distracts them from focusing on the immediate task at hand (Zeidner, 1998). Thus, high levels of worry and self-attention cause highly test anxious people to divide their attention between the task and worries about themselves – therefore hindering academic performance. The cognitive attentional hypothesis (Wine, 1980) is depicted in Figure 2.

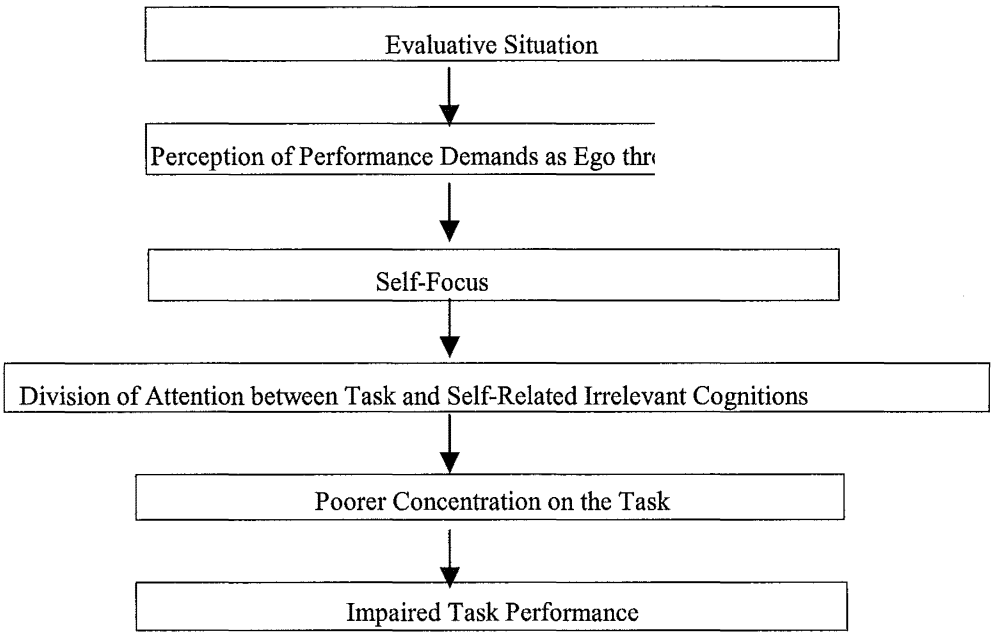

FIGURE 2. The Cognitive-attentional model (Wine, 1980; Zeidner, 1998, p 67)

A growing body of research has provided empirical support for cognitive-attentional theories of test-anxious students. The evidence has needed to demonstrate that evaluative situations produce excesses in task- irrelevant cognitions, which in turn cause an impaired performance. Previous studies have determined that maladaptive cognitions play a major role in test anxiety (Wessel and Mersch, 1994). Compared to low test-anxious students, high test-anxious students have been found to have more preoccupied thoughts about their own performance, compare themselves unfavorably to others and predict an unfavorable evaluation by examiners (Deffenbacher, 1986, in Wessel 1994). Furthermore, an experiment by Blankenstein et al (1990) reported that high test -anxious students have fewer positive self-referential thoughts and more negative self-referential thoughts than students with low test- anxiety do.

It seems that even imagined test conditions provoke negative thoughts in high test-anxious students (Zeidner, 1998). Previous research has demonstrated that test-anxious students report a greater number of negative self-statements than positive statements when required to imagine a stressful examination scene (Heimberg, 1987). In addition, research has shown that high test- anxious subjects report more cognitive interference and mind wandering when a task is presented as a test rather than as a practice (Zeidner, 1998).

As would be predicted from the cognitive-attentional model, there is compelling evidence to suggest that cognitive- attentional factors are central to heightened test anxiety and reduced academic performance. Evidence surveyed in the cc
this review suggests that the cognitive component of test anxiety is more strong , ed to test performance than emotional arousal. Furthermore, because the cognitive-attentional theory assumes that worry interferes with attention in the testing situation, one would expect interference to be greater on more complex tasks. Indeed, Hembree (1988) established that hard test items elicit heightened anxiety responses and decrease examination performance.

The cognitive-attentional model postulates that anxiety during examinations interferes with students' ability to retrieve and use previously learned information (Everson et al, 1989). One would expect that for the cognitive-attention model to be true, treatment programmes that are cognitive in nature should reduce the interfering worry thoughts and lead to task-directed thoughts and behaviours, as well as improved academic performance. Cognitive-attentional training provides specific training in the redirection of attention to task-focussed thinking. Research on cognitive-attentional training supports suggestions of beneficial effects on the cognitive performance of test anxious individuals (Wine, 1980) from such training. However, results on the efficacy of cognitive therapy treatment programmes are not consistent (Hembree, 1988). In a review of ten "cognitive only" treatment programmes, cognitive therapy reduced test anxiety in nine studies but improved academic performance on cognitive-intellectual tasks in only two of these interventions (Spielberger & Vagg, 1995). These results suggest that interfering worry cognitions and task –irrelevant thought cannot be the only factors that can contribute to the detrimental performance of test- anxious individuals

1.5.2 Skills- deficit model

The Cognitive interference model of test anxiety has been challenged by an alternative *deficit* hypothesis, which assumes the performance reduction observed in test anxious students is attributable directly to study-skill and test-taking deficits (Everson et al, 1989). Proponents of the deficit hypothesis theory argue that since students inadequately encode information during the learning phase, their performance deficits in exams are not to be attributed to cognitive interference during test taking, but rather the retrieval of inadequately learned information (Zeidner, 1998). Kirkland and Holland (1979 in Everson, 1989) imply that defective skills may usurp test anxiety as the operative construct. They state that "...one can not help but raise the q
interferes with effective test-taking behavior or whether the lack of effective sk ılts in test anxiety" (p 314).

There are several causal models proposed to link deficient skills and test performance. The first model assumes that anxiety is a result of multiple experiences of academic failure, due to poor study skills (Figure 3). Thus, poor or inadequate study habits may develop independently of anxiety (Zeidner, 1998).

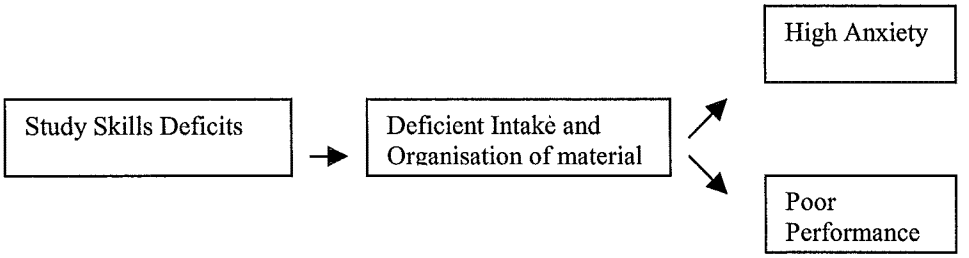

FIGURE 3: Skills-deficit model A (Kirkland & Holland, 1980, in Zeidner, 1998 p 71)

Covington and Omelich (1988) proposed a more elaborate version of the study-skills deficit model (Figure 4). They propose that anxiety is the end result of the causal chain rather than being an antecedent of a poor performance. Their model hypothesizes that people with low ability tend to have poor study habits, which leads to a poor examination performance. Based on previous experiences, these same students are aware of their study deficiencies and likelihood of examination failure, thus lending to high test- anxiety (Covington & Omelich, 1988).

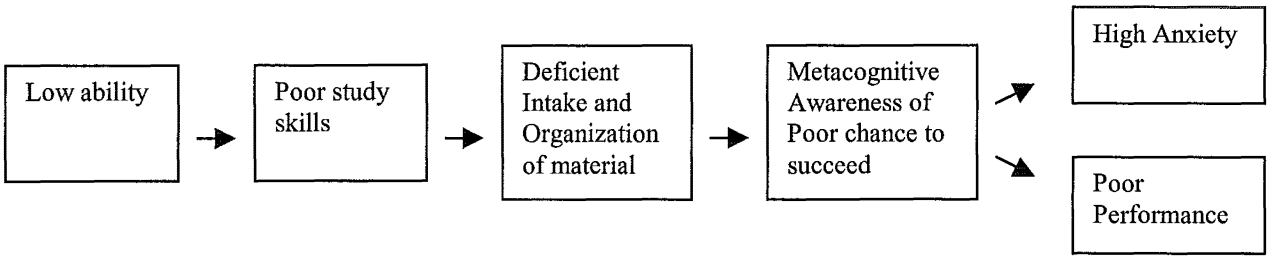

FIGURE 4: Skills- deficit model B (Covington & Omelich, 1988, in Zeidner, 1998 p 71)

An alternative version of the skills-deficit model hypothesizes that anxiety is a key factor that may interfere with the acquisition of study-skills as well as test performance (Figure 5). Hence, within this model, anxiety is regarded as a causal performance, rather than an outcome of it (Zeidner, 1998).

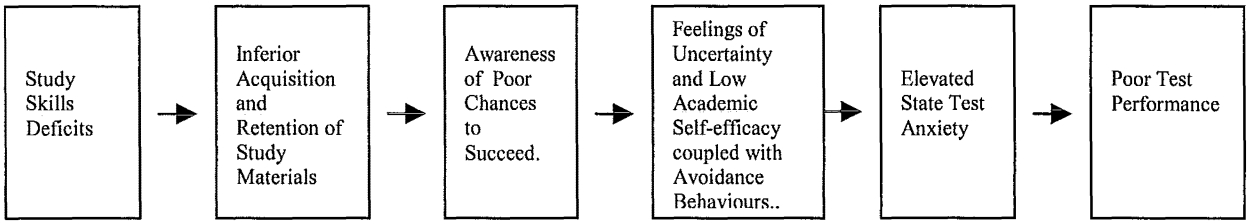

FIGURE 5: Skills- deficit model C (Zeidner, 1998, p 71)

Evidence supporting the deficit position attempts to establish empirical links between test anxiety and study skills, and then study skills and academic performance. Research is consistent with the assumption that high test-anxious students have significantly lower levels of study-skills than their low-test anxious counterparts (Hembree, 1998; Zeidner, 1998). A study by Culler and Holahan (1980) compared the study skills of high and low-test anxious students. It was found that high test-anxious students scored about one standard deviation lower on the measure of study habits, compared to low test-anxious individuals. Furthermore, high test-anxious students reported spending more time studying than low test anxious students (Culler & Holahan 1980). Overall, the findings suggest that part of the difference in academic performance between high and low test anxious individuals is a function of differential study skills (Zeidner, 1998). Brown and Nelson (1983) examined the relationship between study-skills, test anxiety and performance. It was found that students with good grades

(regardless of test anxiety) scored higher on measures of academic skill than students who receive poorer grades. In addition, although high levels of test anxiety were associated with cognitive and affective distress, academic performance was more strongly related to differences in study and test-taking abilities (Brown & Nelson, 1983).

Similarly, a significant relationship has been found between test-taking skills and test anxiety (Bruch, 1981 in Zeidner, 1998). Low test-anxious students were found to possess a greater number of effective test-taking strategies than students with high test- anxiety (Zeidner, 1998). Furthermore, research presented by Kirkland and Holland (1982 in Hembree, 1988) found that test-taking skills (when controlling for academic ability and anxiety), are independent predictors of academic performanc
suggested those high test-anxious students with good study and test-taking skill , m better academically than high test -anxious students with poor study skills (Culler & Holahan, 1980). Although this supports the notion of the importance of study-skills and academic performance, it seems to be contradictory to the main hypothesis of the skills-deficit model, which proposes that test anxious students perform poorly due to their inability to retrieve inadequately encoded information. Clearly, the skills-deficit model can not adequately explain the cognitive interference reported by high test -anxious students with good study skills (Naveh-Benjamin, 1987). Since these students are adequately prepared for examinations, heightened test anxiety is unlikely to be attributable directly to study-skill and test-taking deficits.

For the skills-deficit model to be affirmed, one would expect treatment programmes that focus solely on study-skills or study counselling to reduce test anxiety and increase academic performance. Although study-skills training can improve study habits (Annis, 1986 in Spielberger & Vagg, 1995), the literature suggests that when used alone, it is rather ineffective in reducing anxiety or improving academic performance (Hembree, 1988). Furthermore, such training adds little to anxiety reduction for students with effective study-skills (Naveh-Benjamin, 1987). It seems that a study-skills component needs to be incorporated into any treatment programme for test-anxious students with poor study habits and attitudes - or reductions in test anxiety will be relatively ineffectual on test performance. Thus, the study-skills deficit model cannot adequately account for the anxiety and performance decrements for all test-anxious individuals.

1.5.3 Information processing model

The information-processing model combines the aforementioned interference and study-skills deficit models for the analysis of test anxiety (Everson et al, 1989). The information processing model explains the performance deficit of highly test anxious individuals both in terms of encoding and organising information, as well as the retrieval of this information in the testing environment (Naveh-Benjamin et al, 1987). Support for this model comes from the research of Benjamin (1981 in Noveh-Benjamin et al, 1987) where it was found that highly test-anxious individuals performed poorly on essay and short-answer questions but relatively well on multiple-choice exams. This lends support for the notion of retrieval deficits in highly test-anxious students be
questions generally involve less active retrieval and more recognition memory. _ _ _ _ _ce for an encoding deficit for highly-test anxious students was found when these students performed poorly in a take-home examination, which did not emphasize retrieval. They encoded the information at a more superficial level than their low-test anxious counterparts (Noveh-Benjamin, 1987). Everson et al (1989) concluded that both the interference and deficit constructs are necessary for understanding test performance.

One of the main limitations of the study-skills deficit model is that it does not explain the performance of highly-test anxious students with good study skills. Noveh-Benjamin (et al, 1987) attempted to resolve this problem by suggesting that there are two types of highly test-anxious students. The first type consists of those students with effective study skills who do not have a problem with encoding and storing relevant material. They fail to adequately retrieve the information due to task-irrelevant responses in the testing situation itself. The second type consists of students with ineffective study-skills who have problems in encoding the relevant material in the first place.

Research by Paulman & Kennelly (1984 in Zeidner, 1998) supports the distinction between two types of highly test - anxious students, where different performance characteristics were found on a laboratory task between students with good and poor study skills. The information-processing model hypothesizes that highly test-anxious students with good study skills should do well in tasks that are non-evaluative in nature, since it is the interfering thoughts that reduce the efficacy of retrieval in testing situations. Conversely, high test- anxious students with poor study skills would be predicted to

perform detrimentally in both non-evaluative and evaluative situations. Since they do not encode and organise the relevant material, their knowledge of the information will be poor regardless of the situation. The results of research by Noveh-Benjamin et al (1987) were inline with the predicted hypothesizes, where highly test anxious students with good study-skills performed better than those with poor study-habits in non-evaluation situations but no differences were found between the groups in the evaluative situation. Thus, instead of claiming a universal deficit in all stages of information- processing for test - anxious students, the results supports a differentiation between different types of highly test -anxious students.

The information-processing model would predict that differe
programmes are needed for test anxious students with poor study habits, and tes us students with good study habits. The treatments that would be effective for students with good study habits should facilitate the development of coping strategies for reducing test anxiety and interference in the examination situation. Support from the literature suggests that cognitive therapy would be the treatment of choice for this type of test-anxious student because it is effective for reducing both the worry and emotionality components of test anxiety (Hembree, 1988). Gonzalez (1986 in Spielberger & Vagg (1995) further found that systematic desensitization combined with anxiety coping training led to a substantial reduction in test anxiety and academic performance, but only for students with good pre-treatment study habits. It was found that systematic desensitization combined with anxiety coping training was ineffective for students with poor pre-treatment study habits, both in reducing anxiety and for producing changes in the way students study for an approaching examination (Gonzalez 1986, in Spielberger & Vagg, 1995).

For treatment programmes to be effective for high test -anxious students with poor study-skills, they need to attack on the dual but interrelated problems of deficient preparation and test anxiety. Noveh- Benjamin et al, (1987) suggest that this type of test anxious student would benefit the most from anxiety-management treatment strategies combined with study and test-taking training to facilitate both information coding and retrieval. Indeed, Hembree's (1988) review of the literature reported that the highest anxiety reduction for high test- anxious students with poor study skills was reported when study-skills training were combined with behavioural therapies. However, Spielberger and Vagg (1995) propose that there are limits to how much can be included in a treatment

programme for this type of test-anxious individual. Research by Gonzalez (1986 in Spielberger & Vagg, 1995) examined the efficacy of systematic desensitization combined with study-skills training, and found little reduction in test anxiety or improvement in study habits. The treatment programme for this group was structured in that the first 15 minutes of each session were devoted to study skills training, and the remaining 45 minutes devoted to practicing systematic desensitization. There was no time devoted to discussing progress and problems the students may have encountered at home for either their study habits or desensitization (Gonzalez, 1986 in Spielberger & Vagg, 1995). Spielberger and Vagg (1984) suggest that the inability of Gonzalez's treatment programme to reduce test anxiety or improve study habits may have been due to the students experiencing a severe information overload. Conse
Vagg (1995) propose that a more structured two-stage treatment programme wc
more beneficial for students with high test- anxiety and poor study skills. They suggest that the first stage of a treatment programme should focus on reducing test anxiety during examinations, whilst the second stage should focus on improving study-habits and test-taking skills. This differs from Gonzalez' s (1986 in Spielberger & Vagg 1995) study where the programme incorporated both study-skills training and reducing anxiety in the same sessions, which may have disrupted the efficacy of both components.

1.5.4 A transactional perspective.

Recently, Zeidner (1997, in Zeidner 1998) proposed an integrative transactional model of test anxiety. This model is based on the transactional discussions of anxiety proposed by Spielberger and Vagg (1984). Zeidner's (1997, in Zeidner 1998) transactional model of test anxiety is a theoretical framework consisting of a number of elements that interact between a person and an evaluative situation. The key elements that are proposed to interact reciprocally include trait anxiety (individual differences in vulnerability), state anxiety, the evaluative circumstance, threat perceptions, appraisals, reappraisals, coping and adaptive outcomes (Zeidner, 1998). The transactional model of test anxiety is presented in Figure 6.

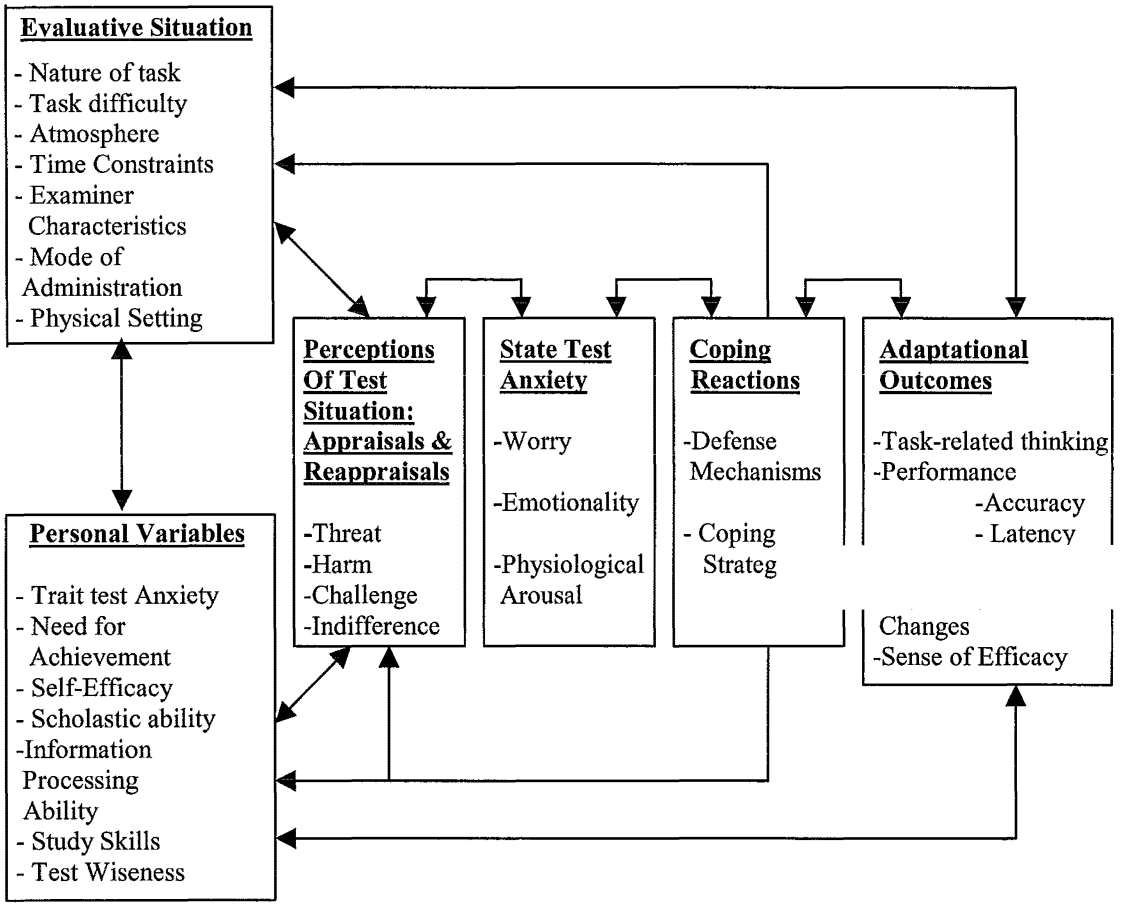

FIGURE 6. Transactional model of test anxiety (Zeidner, 1998, p 19).

1.5.4.1 Situational stress

An evaluative situation is a circumstance where an individual will be judged or assessed against a certain standard (Carver, et al, 1983). An evaluative situation determines the capabilities of an individual to succeed or fail to accomplish the task required, and may result in outcomes that affect the person's goals and values, such as their scholastic future and career (Zeidner, 1998). A test is a specific type of evaluative situation. It is a "procedure used to measure or assess some ability" (Reber, 1995, p 790). It involves providing people with a series of tasks that are limited in place and time, and demands responses from examinees that will be evaluated against a criterion of performance (Zeidner, 1998). Research suggests that anxiety can be associated with all aspects of an examination period. Blanksten, Flett, Watson and Koledin (1990) reported that test anxious students describe being anxious in a test, while waiting to write a test, while studying or preparing the day before a test and even whilst studying the week before a test. Zeidner (1998) further concludes that individuals may experience anxiety whilst

recovering from a test. Clearly, anxiety may be experienced at any point of the examination continuum - this includes any situation that is associated with evaluation (such as a comment about a future test). However, not all students experience anxiety to the same test stimuli, which suggests that the meaning associated with a particular stimulus and a person's past experience of that stimulus is important (Zeidner, 1998).

In the transactional model of test anxiety, Zeidner (1998) proposes that a number of elements within the evaluative situation can lead an individual to experience anxiety. The objective properties of an evaluative stressor include an evaluative atmosphere, time pressures, physical conditions and task characteristics (task content, difficulty, frequency, duration and fairness) (Zeidner, 1998). Indeed, there is evide
stressors affect the performance of high test-anxious individuals. Sarason (1978,
determined that high test-anxious individuals perform well and perhaps even better than low test-anxious individuals when the task is less complex, which suggests that task complexity is related to anxiety and performance. In fact, Zeidner (1998) suggests that the complexity of the task is probably the most important characteristic that evokes anxiety in individuals. A study by Spielberger and Hanson (1969, in Zeidner, 1998) determined that changes in physiological responses occur in high test-anxious students when they are engaging in tasks that are difficult in nature. Since hard test items elicit anxiety responses, it is proposed that difficult examinations increase failure expectancies in test anxious students, increase state anxiety, and decrease examination performance (Hembree, 1988). However, in Hembree's (1988) meta-analytic data on the causes of test anxiety, it was found that although high test anxious individuals reported higher levels of anxiety when the nature of the task is difficult, the performance results of arranging the questions in order of difficulty (easy to hard) were not significant for high test- anxious students, but were for low test - anxious students. One would expect high test- anxious individuals to perform at a higher level when the items are arranged from easy to hard since initial easy questions would increase the individual's confidence and lower emotional arousal. However, this assumption does not yield significant results in the literature (Hembree, 1999; Zeidner, 1998), suggesting that the complexity of the examination is a factor that must interact with other elements at play for the highly test anxious individual.

Speilberger and Vagg (1984) propose that the test atmosphere and environment are important factors that increase anxiety in students. Research suggests that high test - anxious individuals do not respond well to evaluative pressure or situations that are ego threatening to the individual (Zeidner, 1998). Deffenbacher (1978) found that when high test- anxious individuals were assessed in an evaluative situation they reported more negative thoughts and worry cognitions, heightened emotionality, more task-generated interference and performed at a lower level than high test- anxious students in a non-evaluative situation. A further study by Heywood (2000) determined that high test - anxious students perform best when they are not threatened with evaluation or when there is a low probability of error possible. Furthermore, Hembree (1988) concluded that the examination instructions themselves could result in heighter
individuals. It was found that high test- anxious students (in college) performed
when the test instructions were neutral as opposed to ego-involving conditions. Zeidner (1998) proposes that the examiner's characteristics are an element in the transactional perspective of test anxiety. Indeed, research suggests that the examiner's competence; behaviour and disposition can either have increasing or reducing affects on anxiety for the test-anxious individual (Hembree, 1988). Sarason (1981) illustrated that examiner reassurance and social support can counteract the interfering and maladaptive thoughts present in high test- anxious students, suggesting that the qualities of the examiner can and do contribute to anxiety in the testing situation. The situational stressors outlined above are recognised as being important elements in the transactional model of test anxiety. However, they are generally viewed as variables " that provide the individual with information that affects behaviour insofar as it influences such personality variables as the individuals coding, expectancies, or subjective value of the stimulus condition" (Zeidener, 1998, p 21). Thus, situational stressors can be viewed as informational inputs whose impact depends on how they are processed by the person.

1.5.4.2 Threat perceptions, appraisals, and reappraisals

The transactional model of test anxiety states that threats, appraisals and reappraisals are key factors that interact with situational stressors to account for anxiety reactions in test anxious individuals (Zeidner, 1998). This would seem in agreement with Beck et al's (1985 in Salkovskis, 1996) cognitive model of anxiety disorders where an individual's perception of threat and danger are proposed to result in an increase of anxiety. The term

appraisal describes the cognitive process of comprehending and interpreting that mediates between the environment and the emotional reaction of the individual (Lazarus & Folkman, 1984). The cognitive mediation of anxiety implies that situation perceptions do not directly trigger anxiety, it is only after the cognitive appraisal of a situation (Lazarus and Folkman, 1984). Thus, when an individual encounters an examination situation, the context can be evaluated as either challenging, ego threatening or harmful. Lazarus and Folkman (1984) distinguish between two appraisal processes, primary appraisal and secondary appraisal, that are believed to determine whether a person evaluates a situation as being challenging or threatening. *Primary appraisal* is the process of evaluating a situation as involving, challenge threat, harm or benefit to oneself (Lazarus & Folkman, 1984). In the process of primary appra
transactions in terms of importance by comparing the situation (importance of ٧ at stake) with the subjective self (perceived coping resources) (Zeidner, 1998; Zeidner & Shechter, 1993). A situation is appraised as challenging when it mobilizes activity that may lead to self-improvement, with the person confident to met the demands of the task required (Zeidner, 1998). A situation is appraised as threatening when individuals perceive themselves to be in danger, anticipate failure, and harm to their self-esteem or loss (Lazarus & Folkman, 1984). *Secondary appraisal* is a judgement about the coping resources available to overcome a threat or facilitate a challenge (Zeidner, 1998). It is proposed that as part of the appraisal process, individuals judge a number of their resources (cognitive, social, physical and material), to determine whether they can adapt successfully to met the threat or challenge at hand. A *reappraisal* involves a review of the initial appraisal made, based on new evidence, cues, or feedback from the initial response (Lazarus & Folkman, 1984).

In terms of test anxiety, the primary appraisal of a test situation as ego threatening lends to an elevation in anxiety (Spielberger et al, 1978). Furthermore, a rise in test anxiety is associated with an individual's perceived poor coping ability of the testing situation (Zeidner, 1998). It seems necessary to understand both an individual's perceived coping abilities and the perceived threat of the test situation. It has been suggested by Zeidner (1998) that people who perceive they have personal control over threats do not experience maladaptive cognitions and hence are not disturbed by the testing situation. Research by Kalechstein, Hocevar and Kalechstein (1991) determined that students who are internally orientated and hence believe that consequences are the result of their own behaviour, have

a tendency to be academically successful and only experience test anxiety to a level that is functional for optimal performance. The relationship between test anxiety and performance levels is displayed in appendix G. High test -anxious individuals tend to be externally orientated people who believe that the consequences of their actions are determined by fate or luck, rather than by their own actions (Kalechstein et al, 1991). This perceived 'lack of control' over outcomes would seem likely to interact with the highly test - anxious individual's perception of their coping abilities, and potential ability to overcome the threat of the testing situation.

The actual appraisal of a test situation as threatening depends on a number of objective and subjective factors such as the demands of the situation, ı
situations, knowledge of potential consequences, evaluation of its apparent cost ner & Shechter, 1994) and personality differences (trait anxiety) (Zeidner, 1998). One key element of threat is that it is future-orientated. That is, it is the anticipation of potentially harmful events such as failure, disapproval etc., rather than actual experience of harmful events per se. However, past experience and memory of failure are believed to be processes involved in threat experiences (Zeidner, 1998). An individual who perceives an examination as threatening is believed to experience an increase in state anxiety regardless or whether the threat is real or not. Accordingly, the intensity of the anxiety state is related to the severity of the threat that the individual perceives (Spielberger et al, 1978). The 'threat value' of a potentially threatening examination situation is believed to be determined by the following factors: personal salience of the test (e.g., "I need to do well on this test"), subjective probability of an unsuccessful test outcome (e.g.," I will fail this test"), approximation of the event (e.g., "it is tomorrow and I have not started studying"), perceived unpleasantness of the event (e.g., "I hate taking exams") and perceived availability of coping strategies (e.g., "I do not know how to study for the test") (Eysenck 1992, in Zeidner, 1998).

The transactional model of test anxiety (Zeidner 1998) predicts that individuals high and low in test anxiety differ in their appraisals of examination situations (trait anxiety – appraisal – state anxiety). Individuals low in test anxiety tend to view tests as a challenge rather than as a threat and as a result attend to the task at hand as opposed to themselves (Zeidner, 1998). Conversely, high test- anxious individuals are absorbed with negative thoughts of the self, negative emotional arousal, anticipation of failure and negative

outcomes and consequently view the examination situation as a threat (Spielberger at al, 1978). The evidence suggests that threat perception, appraisal and reappraisals are key elements in test anxiety which interact with situational stressors, personal differences and coping abilities to determine the level of anxiety an individual experiences in the testing situation.

1.5.4.3 Trait-state anxiety

Trait and state anxieties are proposed to be key elements in Zeidner's (1998) transaction model of test anxiety. Spielberger's trait-state theory of anxiety (1976) provides a distinction between anxiety as stable personality state and an emotional state. Trait anxiety refers to "relatively stable individual differences i ty proneness, that is, to differences in the disposition to perceive a wide range of stimulus situations as dangerous or threatening, and in the tendency to respond to such threats with state anxiety reactions" (Spielberger, Anton, & Bedell, 1976, p 322). State anxiety refers to "a transitory emotional state...that varies in intensity and fluctuates over time" (Spielberger et al, 1976, p 323). Lazarus and Folkman (1984) suggest that an individual's response to a given test situation is greatly determined by the extent to which the situation is perceived as harmful, threatening or challenging.

It is suggested that people differ in their predisposition to view a given test situation as threatening, harmful or challenging (Spielberger & Sarason, 1978). In terms of state-trait anxiety theory (Spielberger et al 1976), test anxiety has been conceptualized as a situation-specific trait anxiety (Spielberger & Vagg, 1984). Indeed, Spielberger and Sarason (1978) attempted to classify the Test Anxiety Scale (TAS) (Sarason, 1972) and the Test Anxiety Inventory (TAI) (Spielberger, 1983) as measures of either trait anxiety or state anxiety. It was found that correlations of the TAS and TAI were higher with trait anxiety scores than with state anxiety scores. However, correlations of the emotionality subscale of the TAI with State anxiety were high, suggesting that emotionality is a measure of state anxiety in test situations. A study by Spiegler, Libert and Morris (1968 in Spielberger et al, 1976) examined the consistency of worry and emotionality scales on the Test Anxiety Questionnaire (1967). Both the worry and emotionality scales were presented to students five days before, immediately before, and immediately after an examination. It was found that worry scores remained approximately constant, whilst

emotionality scores increased just before the examination and decreased immediately after the examination (Spielberger et al, 1976). In relation to state-trait theory, these findings suggest that emotionality on test anxiety scores relate to an emotional state (state anxiety), whereas worry relate to individual differences in a tendency to worry (trait anxiety) (Spielberger et al, 1976).

Trait test anxiety is inferred from the recurrence and intensity of an individual's increase in state anxiety in test situations overtime, rather than from behaviour per se (Zeidner, 1998). It is proposed that individuals high in test anxiety are more likely to perceive exam environments as threatening or dangerous than their low-test anxious counterparts. This perception of examinations as being threatening leads the in
and heightened state anxiety in evaluative situations (Zeidner, 1998). An increa ate anxiety is thought to stimulate previous worry cognitions held in the individual's memory, thus distracting the student from completing the task at hand. Thus, individuals that are high in evaluative trait anxiety are more predisposed to view the testing situation as threatening or harmful than low trait anxious people (Spielberger et al, 1976; Zeidner, 1998). These individuals tend to readily experience stress in testing situations and experience more intense and more frequent state anxiety reactions than those who are low in trait anxiety (Spielberger et al. 1976; Zeidner, 1998).

State test anxiety refers to transitory emotional states that occur in individuals that perceive an examination situation as challenging, harmful or threatening (Zeidner, 1998). These emotional responses are characterized by feelings of apprehension, tension, arousal, and increased activity of the autonomic nervous system (such as sweating, muscle tension, heart palpitations, etc.) (Spielberger et al, 1976). These emotional states are often associated with increasing individuals' worry cognitions, self-ruminative thoughts and loss of self- value (Spielberger & Vagg, 1984). The extent and strength of a test anxiety state is predicted to be determined by a multiplicity of factors such as individual differences in trait anxiety, the amount of objective examination stress that intrudes on the individual, and the individual's perception of the situation as being challenging or threatening (Spielberger et al, 1976; Zeidner, 1998). In test situations the high levels of state anxiety that are aroused in trait test anxious persons are proposed to result in both task-related error bias which compete with correct responses, and task

irrelevant worry responses that hinder the individual from competent task performance (Spielberger et al, 1976).

1.5.4.4 Coping behaviours and outcomes

Coping involves constantly changing cognitive and behavioral efforts by the individual involved, to manage the internal and external demands of a situation that is appraised as stressful by the individual involved (Zeidner, 1995). Zeidner (1998) incorporates coping as an important aspect in the transactional model of test anxiety due to its effects on appraisal of situations and adaptive outcomes. Folkman and Lazarus (1985) noted that an important feature in the coping literature is between emotion focussed coping (in Blankstein, Flett and Watson, 1992). Individuals characterized by problem-focussed coping develop strategies that are designed to manage or solve the problem by removing or reducing the problem in question. In contrast, individuals characterized by emotion-focussed coping are influenced strongly by the affect state itself. These people engage in behaviors that are designed to reduce negative emotional reactions (worry), rather than directly addressing the problems that created the negative emotions (Blankstein et al, 1992). Zeidner (1995) further incorporates an avoidance coping style in his model. Avoidance coping involves activities and cognitive changes designed to avoid the stressful situation either by person-orientated activities (seeking out others), or task-orientated activities (performing irrelevant tasks).

Which coping style (emotion-focussed, problem-focussed or avoidance coping) is predictive of high test anxiety? A relationship has been found between emotion-focussed coping and avoidance coping, with high test anxiety (Toner and Flett, 1989, in Blankstein et al, 1992). Research by Zeidner (1995) confirmed this by finding that students who employ more emotion-focussed coping tend to be more anxious in a testing situation than students who employ problem-focussed coping techniques. Also, avoidance behavior has been found to be highly correlated with high scores on the *worry* component of test anxiety, whereas students scoring high on the *emotionality* component of test anxiety were more likely to use emotion-focussed coping. Both emotion-focussed and avoidance types of coping style were found to led to a detrimental examination performance (Zeidner, 1995).

A study by Blankstein et al (1992) examined the link between test anxiety and self-appraisals of problem-solving ability. It was found that high test anxiety is associated significantly with decreased problem-solving confidence and personal control over their problems. In addition, measures of emotion-focussed coping and perceived problem-solving ability were found to be strongly correlated with trait and state anxiety. Specifically, high scores on trait and state anxiety correlated with the tendency of individuals to avoid coping with one's problems (Blankstein et al, 1992; Zeidner, 1995). This relationship between individuals with high trait and state anxiety and use of avoidance coping methods seems a foregone conclusion considering individuals high on trait anxiety are predisposed to view the situation as threatening, which presumably results in a perception of loss of control and self-doubt over academic challenge. Taken together, the findings of Blankstein et al (1992) suggest that not only are ways of coping important in test anxiety, but appraisals of the ability to cope effectively may be of equal importance. It appears that test-anxious students avoid attempts to solve their problems and that these avoidance tendencies are due in part to a perceived lack of ability, and lack of control over outcomes (Blankstein et al, 1992). This finding has important treatment implications as it suggests that counsellors should employ diverse cognitive-behavioral interventions that aim to reduce trait and state anxiety and focus on teaching appropriate coping skills to test-anxious students as well as enhancing their problem-solving confidence.

1.6 An evaluation of test anxiety treatment interventions

Test anxiety treatment interventions can be placed on an emotional – cognitive continuum (Spielberger & Vagg, 1995; Zeidner, 1998). The emotion-focussed treatments are primarily behavior orientated therapies that aim to reduce the increased emotional reactions of test anxious individuals (Hembree, 1988). The main behavioural therapies used in the treatment of test anxiety are systematic desensitization, biofeedback training, and relaxation training (Hembree, 1988). Cognitive focused treatments are at the opposite end of the emotion – cognitive continuum, and aim to change the maladaptive cognitions that are believed to underlie the emotional responses of test anxious individuals in evaluative situations (Zeidner, 1998). The main cognitive interventions are cognitive therapy and rational emotive therapy (Spielberger and Vagg, 1995). Eclectic test anxiety

treatment programmes can be placed in the middle of the continuum because they include both cognitive and emotion focussed strategies to alleviate test anxiety. Most methods for reducing test anxiety appear to be multidimensional in context, where the "distinction between the various treatment orientations are quite fuzzy" (Zeidner, 1998, p 348).

1.6.1 Behavioural interventions

Systematic desensitization has been investigated more than any other form of test anxiety treatment intervention (Spielberger & Vagg, 1995). The findings in most studies of systematic desensitization with test anxious students have consistently indicated that desensitization is effective in reducing test anxiety and in im performance (Hembree, 1988). However, in most test anxiety treatment studies, systematic desensitization has been used to modify the emotional reactions of test anxious students; cognitive ruminations and worry reactions have been largely ignored (Spielberger & Vagg, 1995). Further, Zeidner (1998) proposes that systematic desensitization does not fare well when the criterion for outcome performance is cognitive. Contrary to Hembree's (1988) findings that systematic desensitization provides a modest enhancement of grade point averages, research has demonstrated that systematic desensitization alone, does not result in an improvement of academic performance (Russel et al, 1982). Spielberger & Vagg (1995) have criticized Hembree (1988) because the meta -analysis employed combined diverse groups of participants who were treated with vastly different therapeutic techniques – it is not possible to evaluate the efficacy of specific components of the various treatments. In studies where improved grade point averages have been found, the systematic desensitization procedures failed to reduce test anxiety (Zeidner, 1998). It seems that because systematic desensitization is designed to reduce test anxiety and thereby facilitate academic achievement, results of improved academic performance in the absence of a reduction of test anxiety are contradictory (Spielberger & Vagg, 1995). In sum, although Hembree (1998) initially provided substantial evidence that desensitization is effective in reducing test anxiety, the current literature suggests that systematic desensitization alone is not sufficient to reduce test anxiety, and improve academic performance (Russel et al, 1982; Spielberger & Vagg, 1995; Zeidner, 1998).

Biofeedback training teaches test anxious individuals to become more aware of their physiological states of arousal (Hembree, 1988). Although the literature supports the assumption of increased control of physiological responses when using biofeedback training (Zeidner, 1998), when used alone the intervention is not effective in reducing test anxiety (Spielberger & Vagg, 1995). Moreover, unlike systematic desensitization, the addition of biofeedback training does not improve the efficacy of other forms of treatment (Spielberg & Vagg, 1995). Furthermore, the monetary cost of implementing biofeedback training is expensive, so biofeedback training is not the treatment of choice in most recent test anxiety treatment programme interventions.

Relaxation training is directed towards modifying the emotic
students in evaluative situations Zeidner, (1998). Relaxation is a frequently use
technique because it is relatively easy to train and applicable in a variety of anxiety-inducing settings. The relaxation techniques commonly employed in test anxiety interventions are progressive muscle relaxation and cue-controlled relaxation (Russel et al, 1982). Hembree's (1998) meta-analytic research supports the effectiveness of both types of relaxation in reducing test anxiety, where post-treatment scores reduced by two thirds when compared to control groups. However, the effects of relaxation training alone on academic performance have yielded inconsistent results (Spielberger & Vagg, 1995), and research that has compared the effectiveness of relaxation training to other treatment interventions, have reported a variety of success (Zeidner, 1998).

1.6.2 Cognitive interventions

Maladaptive cognitions have been found to play a major role in test anxiety (Wessel & Mersch, 1994). According to Wine (1980) the treatment of choice should be cognitive in nature, aimed at correcting cognitive distortions in test anxiety. The effectiveness of cognitive therapy for reducing test anxiety has been widely researched (Wessel & Mersch, 1994; Fletcher & Spielberger in Spielberger & Vagg, 1995). Although significant reductions in test anxiety were found in all but one of the studies, there was no improvement on academic performance. In a review of ten "cognitive only" treatment studies, cognitive therapy reduced test anxiety in nine studies but improved academic performance in only two of these interventions (Spielberger & Vagg, 1995). However, contradictory to this, Hembree (1988) concluded from a review of six cognitive

treatments for test anxiety that cognitive therapy is not effective in reducing test anxiety or improving academic performance. In summery, the literature is inconclusive with regard to the efficacy of cognitive therapy alone in reducing test anxiety, but in agreement that cognitive treatments by themselves do not improve academic performance.

Rational emotive therapy aims at teaching test anxious students to change the irrational beliefs that are assumed to be responsible for anxiety responses in evaluative situations (Zeidner, 1998). The technique is different from cognitive therapy in that whilst cognitive therapy aims to displace the worries of test anxious students with thoughts that are incompatible with their occurrence, rational emotive therapy directly challenges the irrational beliefs and faulty assumptions of test anxious stud
1994). Although a number of studies have shown that rational emotive therapy
efficacious in reducing test anxiety (Zeidner, 1998), it has not been demonstrated to increase academic performance (Hembree, 1988). Research comparing the relative effectiveness of cognitive therapy and rational emotive therapy (Wessel & Mersch, 1994), revealed that both types of intervention are equally effective in reducing test anxiety and trait anxiety, although cognitive therapy reduced state anxiety to a more significant level. Further, both cognitive therapy and rational emotive therapy were not effective in improving study habits or academic performance (Wessel & Mersch, 1994). Due to the relative ease of administering cognitive therapy compared to rational emotive therapy techniques, cognitive therapy should be used to modify the worry and emotionally components of test anxiety (Spielberger & Vagg, 1995).

1.6.3 Cognitive- behavioural interventions

Cognitive-behavioural techniques are multifaceted treatment approaches that use techniques from diverse sources to influence the variety of components of test anxiety. It is not possible to examine the efficacy of all of the cognitive-behavioral techniques employed in the literature because of the range of interventions that can fit into this type of intervention. In examining the effectiveness of cognitive-behavioural therapies for the treatment of test anxiety, Hembree (1988) included the techniques of cognitive modification, attentional training, insight therapy, anxiety-management training, and stress inoculation. Hembree (1988) found that cognitive-behavioural interventions were effective in reducing both the worry and emotionality components of test anxiety, and

indicated a raise in test performance by three-quarters of a standard deviation on grade point averages.

Recent research suggests that although cognitive-behavioural interventions are efficacious in the treatment of test anxiety, students with high test- anxiety and poor study and test taking- skills would benefit from interventions that address both test anxiety and study-skills (Spielberger & Vagg, 1995; Zeidner, 1998). Study-skills training does not specifically address the components of test anxiety, and the literature suggests it is ineffective, when used alone, in reducing test anxiety and improving academic performance (Hembree, 1988). However, the combination of study-skills training and cognitive behavioural therapy has been shown to reduce test academic performance more than either intervention alone, for this type of test population (Russell & Lent, 1978; Hembree, 1988; Zeidner, 1998). Spielberger & Vagg (1995) propose that a two-stage treatment programme would theoretically seem to produce the best long-term results. The first stage, for both types of test anxious students, should focus on reducing test anxiety during examinations and help students' use their existing coping skills more effectively. Results from the literature indicate that a cognitive-behavioural intervention would seem the most efficacious for stage one of a treatment programme for test anxiety (Hembree, 1988; Zeidner, 1998). The second stage, for students with poor study-skills, should then focus on improving study and test-taking skills (Spielberger & Vagg, 1995).

1.7 The efficacy of a cognitive-behavioural treatment programme for students with high test anxiety and poor study skills.

The purpose of the current study was to examine the efficacy of a cognitive-behavioural treatment programme for students with high test- anxiety and poor study skills. The treatment programme employed was two-stage, where stage one focused on anxiety-management training and stage two taught study and test-taking skills. The aim of using this type of programme was to provide evidence for the suggestions of Spielberger and Vagg (1995), that students with poor study skills need a two-stage treatment programme to avoid cognitively overloading them with too much information. Further, a week's time-gap between the two stages of the treatment programme was introduced to give the

participants further time to practice their anxiety management skills, and essentially give them a break from the intensity of the treatment programme.

Research suggests that regardless of whether treatments employed are cognitively or emotionality orientated, both worry and emotionality components of test anxiety will be reduced post-treatment (Hembree, 1988; Fletcher & Spielberger in Spielberger & Vagg, 1995; Zeidner, 1998). Research findings also suggest that anxiety-management training combined with study-skills training may prove most efficacious for students with high-anxiety and poor study-skills (Lent & Russell, 1978; Wessel & Mersch, 1994; Noveh-Benjamin, 1987). Support for the use of anxiety-management training in reducing test anxiety is widespread (Lent & Russell, 1978; Hembree, 198
Zeidner 1998). Anxiety management training has also been suggested to be mo
effective than related interventions such as systematic desensitization or self-control desensitization (Zeidner, 1998). Due to the indication that anxiety management training is effective in the reduction of test anxiety with decreasing levels of anxiety continuing over long periods of time (Suinn, 1990), anxiety-management training was employed in the current research.

The current treatment programme targeted a specific population of highly test - anxious students. In line with the information-processing model of test anxiety (Noveh-Benjamin et al, 1987), a treatment programme that incorporates both skill-training and behavioural components should reduce test anxiety and improve study habits for all students with high test- anxiety and poor study habits. Thus, the current study specifically targeted high test - anxious students with poor study habits to provide further support for the notion that this form of treatment is efficacious for this type of test-anxious population.

Since the entire group of participants belonged to an exclusive type of students with test anxiety, the current research aimed to explore whether the treatment programme was effective for each of the participants on an individual level. Research supporting the effectiveness of treatment programmes for students with high test- anxiety and poor study-skills (Neveh-Benjamin et al, 1987; Hembree, 1988) has adopted traditional research methods of experimental design whereby inferences have been made from group samples to the population (Blampied, 1999). Thus, because treatment programmes consisting of study-skills and behavioural components have found a difference between

the means of a control group and the means of a high test- anxiety with poor study-skills group, an inference has been made that the treatment programme will work for all individuals who receive treatment. According to proponents of single-case research, this inference that all members of a given population are the same as "the abstract average person" (Blampied, 1999, p 94) is false most of the time unless the population mean has small variance. Furthermore, concluding that a certain treatment programme necessarily yields a significant result in improving the condition of all the sample population, is also considered false (Favreau, 1993, in Blampied, 1999) due to the broad variance of response by individuals within a treatment group. Given the problems of generalizing group data, the current research followed a multiple-baseline-across-groups design (Cooper, Heron, Heward, 1987). The inclusion of this design
the treatment programme to be examined for each participant in the programme Treatment was provided for groups of test- anxious participants rather than working with the participants on an individual basis. It has been suggested that treatment for test anxiety in-groups is more effective and efficient than individual therapy (Spielberger & Vagg 1995) because group counselling stimulates participants to try out new anxiety reducing techniques, and allows them to discuss the efficacy of novel approaches to studying.

The information-processing model argues that the retrieval of previously learned information is problematic for high test - anxious students due to task- irrelevant and maladaptive thoughts. The current study aimed to assess the content of the participants' thoughts in a variety of test situations without imposing the researcher's preconceptions on the participants. The use of the automatic thoughts in simulated situations paradigm (ATSS, Davison, Vogel, and Coffman, 1997) was implemented to achieve this goal. The ATSS paradigm allows for immense freedom in the data participants' potentially can provide, as compared to paper-pencil measures where often the data is in a forced-choice format with predetermined options (Davison et al, 1997). Initial validation studies for the ATSS procedure focussed on determining whether participants would respond to a stimulus tape by talking about what was going through their mind, whether it was possible to construct content categories, whether the transcripts could be coded reliably, and whether the results would show significant effects (Davison, Robins and Johnson, 1983). The results supported the construct validity of the ATSS, where participants who listened to a social criticism tape articulated more critical thoughts than they did when

listening to the control tape. Reliability of the coding was reported ranging from .75 to .86 (Davison et al, 1983). Since the initial experiment with the ATSS paradigm, a number of studies have provided evidence for the construct validity of the paradigm with a variety of clinical issues being addressed (Davison, et al, 1997).

The current study hypothesized that the participants' frequency of dysfunctional beliefs and negative statements on the ATSS would reduce from pre- to post-treatment, whilst their frequency of functional beliefs and positive statements would increase. Further, according to the transactional model of test anxiety, appraisals of an individual's coping strategies are believed to be a key element in heightened test anxiety (Zeidner, 1998). The current study hypothesized that the frequency of perceived p
examination skills would reduce from pre-to post-treatment on the ATSS, whil
perceived good coping and examination skills would increase.

To summarize, the current research predicted that all participants in the treatment programme would show a change in the therapeutic direction from pre- to post-treatment on the measures of worry and emotionality on the Test Anxiety Inventory (Spielberger, 1983), state and trait anxiety on the State-Trait Anxiety Inventory (Spielberger, 1983), study habits and attitudes on the Survey of Study Habits and Attitudes (Brown-Holtzman, 1967), and content of automatic thoughts, as measured by the ATSS paradigm.

Method

2.1 Design

Participants were divided into three groups (n=4, n=3, n=2) based on their availability to attend the six-week test anxiety treatment programme. The design followed a multiple-baseline-across-groups design (Cooper, et al 1987), where group one commenced treatment the week following pre-testing, whilst group two and three were wait-list controls. After two weeks, groups two and three completed the pre-testing measures again, where group two then commenced treatment. Finally, after a further two weeks, group three completed the pre-testing measures for a third time and then commenced treatment.

2.2 Participants

2.2.1 Recruitment and selection

Upon approval from the Human Ethics Committee at the University of Canterbury, participants were selected from amongst volunteers who responded to advertisements for a treatment programme for test anxiety. Advertisement was in the form of posters displayed throughout the Psychology Department, the Student Health Centre and various campus notice boards. The recruitment poster is presented in Appendix A. An electronic mail was also sent to all students with this facility in the psychology department, inviting them to participate in the treatment programme.

All students who responded were presented with an information sheet about the test anxiety programme. The information sheet is in Appendix B. These students were then administered the Test Anxiety Scale (TAS) (Sarason, 1972), and the Survey of Study Habits and Attitudes (SSHA) (Brown-Holtzman, 1967). The TAS is a 37-item true-false questionnaire measuring debilitative test anxiety, whilst the SSHA is a self-report index of study habits and attitudes. Students who scored above the 70th percentile on the TAS; below the median on the SSHA and who were not receiving any type of psychological treatment were invited to participate in the programme (Russell and Lent, 1982).

2.2.2 Personal and Demographic information

A total of 15 students met the criteria to participate in the treatment programme, nine females and six males. Throughout the treatment programme six participants withdrew from the study for a variety of reasons, including time constraints and health problems. The total number of participants who completed the programme was nine, six females and three males. The mean age of the participants was 21.3, the median age was 21 and the age range was 10 years. All of the participants who completed the treatment programme were enrolled in psychology at an undergraduate level, with the exception of participant five, who was an undergraduate student studying engineering.

2.3 Measures

Test Anxiety inventory (TAI) (Spielberger, 1980). The TAI is a 20-item, self-report psychometric scale designed to measure individual differences in test anxiety as a situation-specific personality trait. In addition to measuring individual differences in anxiety proneness in test situations, the TAI subscales assess worry and emotionality as major components of anxiety. The alpha reliabilities for the TAI total scale were uniformly high for both males and females (.92 or higher) in the derivation sample (Spielberger, 1980). The correlations of the TAI total scale, with the Test Anxiety Scale (TAS) (Sarason, 1972), .82 for males and .83 for females, suggests that the 20-item TAI total scale and the 37-item TAS are essentially equivalent measures, supporting the validity of the TAI as a measure of test anxiety.

State-Trait Anxiety Inventory (STAI) (Spielberger, 1983). The STAI is a 40-item self-report measure of state and trait anxiety. The Trait Anxiety subscale asks participants to report how they generally feel, whilst the State Anxiety subscale assesses the participants feelings of anxiety at that moment. The STAI was employed to determine the extent to which the treatment programme produced generalised anxiety reduction. Median alpha coefficients for the State Anxiety and Trait Anxiety scales in the normative samples are .92 and .90 respectively (Spielberger, 1983). Test-retest correlations on university students ranged from .73 to .86 for the T-Anxiety scale and from .16 to .62 for the S-Anxiety scale. The low S-Anxiety reliability coefficients were expected because a valid

measure of this trait should reflect the situational factors at the time of testing. The STAI has been found to correlate .70 and .81 for S-Anxiety and T-Anxiety respectively, with the Minnesota Multiphasic Personality Inventory, providing evidence of concurrent validity.

Survey of Study Habits and Attitudes - form C (SSHA) (Brown-Holtzman, 1967). The SSHA is a 100-item self-report index of study habits and attitudes. It is divided into four basic subscales: Delay Avoidance, Work Methods, Teacher Approval and Educational Acceptance. The Study Habits subscale (SH) assesses specific study habits such as promptness in completing assignments, freedom from distraction, and effective study procedures. The Study Attitudes (SA) subscale measures stu
academic tasks, feelings about the fairness of lecturers, and beliefs about the pu_ _ _ _f education. The test-retest reliability coefficients obtained from the derivation sample for the four basic SSHA subscales ranged from .87 to .89 (Brown-Holtzman, 1960). The correlation between the SSHA total score and grade point average, derived from a sample of 1772 college students =0.36. The SSHA subscales correlates with grade point averages were .31, .32, .25, and .35, respectively for Delay Avoidance, Work methods, Teacher Approval, and Education acceptance. Thus, each of the four basic SSHA sub scales may measure traits that play an important role in academic achievement.

Automatic Thoughts in Simulated Situations (ATSS). The ATSS, a cognitive assessment, is a think-aloud approach aimed at understanding the products and processes of cognition (Davison, Vogel, and Coffman, 1997). Participants listen to a stimulus tape (the content of the tape will vary depending on the specific nature of the research) and try to imagine that they are in the situation they are listening to. At the end of each segment there is a tone, followed by a thirty-second pause during which time the participant says aloud whatever is going through their mind. Another segment is played, followed by the participant's report, and so on. Participants' spoken thoughts are tape recorded and later transcribed for content analysis.

2.4 Procedure

A week prior to the commencement of the treatment sessions, participants meeting the cut-off criteria signed the participant consent form (Appendix C) and then completed the pre-testing measures. Participants were then divided into three groups based on their availability to attend the six week treatment programme (n=4, n=3, n=2). The procedure followed a multiple-baseline-across-groups design, where group one commenced treatment the week following pre-testing, whilst group two and three were wait-list controls. After two weeks, groups two and three completed the pre-testing measures again Group two then commenced treatment. Finally, after a further two weeks, group three completed the pre-testing measures for a third time and then

The ATSS paradigm was not implemented as a measure when the participants were waitlist controls. It was completed by all participants during the initial pre-testing phase but not utilized for a second time until the post-testing phase. The reasoning for this was to reduce the familiarity of the recorded scenarios to the participants. During the final session of the treatment programme, each participant completed all of the post-testing measures as well as an evaluation of the test anxiety treatment programme itself. Details of the programme evaluation are presented in Appendix D.

2.4.1 Procedure of ATSS

Thirteen scenarios relating to test anxiety were professionally tape-recorded. The content of the scenarios followed the temporal phases of the examination process. The first four scenarios related to the anticipatory stage, where participants' became aware of an impending examination, began discussing and preparing for an impending examination, and finally were left waiting to enter an examination room on the day of the test. Scenarios five to nine were related to the confrontation stage of the examination process, where the participants' were in the examination room waiting for the signal to commence the examination, began to complete the examination paper, became aware of the time-constraints, and finally handed the examination paper upon instruction. Scenarios 10 to 12 were related to the waiting stage of the examination process, where participants' met friends who had completed the same examination as them, arrived home to glance at their

study notes from the previous examination, and finally were told by a lecturer that grades would be posted the following day. Scenario 13 was related to the outcome stage of the examination process, where the students are left viewing the board where their grades are posted. Each of the 13 scenarios was followed by a 30-second silent pause, during which participants verbalized their current thoughts. The scripted content of each scenario is presented in Appendix E.

At both the pre- and post testing phase, each participant was instructed to sit at a table on which were placed two tape recorders. One of these was connected to a set of speakers, and the other was equipped with a microphone. Participants were verbally instructed by the researcher to listen to the tape of a simulated situation ar
they could that they were a part of the event as it unfolded. They were also told
into their thoughts and feelings, and each time a scenario finished, there would be a tone followed by a 30-second pause, where they were to say their current thoughts and feelings out loud. Participants were aware that they were being recorded, speaking directly into the microphone during the 30-second silences. Each participant was then given the opportunity to ask questions, before the stimulus tape was presented. The researcher left each participant in the room by themselves to complete the ATSS task. The reasoning behind this was to make the participants feel as comfortable as possible when talking aloud, and to reduce distraction by the observer.

A verbatim transcription was made of the tape-recorded thoughts generated by each participant at each response point. Each participant provided 26 response segments, 13 in the pre-testing phase and 13 in the post-testing phase. Since responses are not always in the form of complete sentences, or a sentence may contain a number of ideas (Davison et al, 1983) the transcripts were organized into idea units. As defined by Davison et al (1997, p26), idea units "...should be as small as possible while not distorting what was assumed to be the intention of the speaker". The following transcription is illustrative; idea units are bracketed.

> [Why is it I just feel that everyone is going to get this finished before me.][I just can't help it.][I look at the questions, and I've just got to take my time][cause I know everyone else will be doing better and going through it quicker,][but I just don't know how to do them][or if I'm thinking the wrong thing.]

The idea units were subsequently divided into codes, with one code being used for each idea unit. Seven codes were employed in the classification system, three of which reflect negative beliefs/coping/statements, and three of which reflect positive beliefs/coping/statements. The final code was implemented for sentences that were not applicable to the any of the above codes. The codes were based initially from the set of codes used in the research of Davison et al (1983) where 23 codes were employed. The researcher found that many of these codes were redundant for the purposes of the current research, and thus based the belief codes on Beck's characterization of thought content in anxiety disorders (Davison & Neale, 1994). The coping codes were employed to incorporate both coping responses in examination situations techniques. The statement codes were included to ensure that both negative and positive thoughts that were not necessary beliefs would not be lost in the data classification. The codes of articulated thoughts are presented in Appendix F.

The reliability of the codes for the ATSS was evaluated. The researcher initially coded all of the 26 response segments for each participant. An independent rater was then employed to code one third of the transcripts. Eight transcripts (13 response units in each transcript) were randomly selected for the independent rater to code; 4 pre-treatment and 4 post-treatment. The inter-rater reliability was computed by dividing the number of agreed classifications of a particular transcript over the total number of classifications possible. Across the eight transcripts, the initial average was 84%, with the results ranging from .68 to .93. The researcher and the independent rater then discussed the discrepancies in the coding, and the final inter-rater reliability average was 91% with the results ranging from .85 to 1.0. The independent rater then coded a further two of the participants' transcripts to ensure reliability with the researcher post-discussion. The inter-rater reliability for the transcripts was .87 and .85 respectively. Thus, there was a high agreement between raters on the code to classify each unit of meaning. The researcher went on to categorize the entire data set.

2.4.2 Treatment procedure

Treatment was administered to participants in each of three groups, and consisted of two one-hour sessions a week for six weeks. The total number of sessions for each group was 10, as week four consisted of no treatment.

The entire treatment programme was scripted prior to the sessions to standardize treatment between the groups. For the transcripts of the treatment programme refer to Appendix G. The treatment programme was divided into two stages. The first stage of the treatment programme was devoted exclusively to Anxiety Management Training (Suinn, 1990). The second stage focussed primarily on teaching stud
(Jackson, Reid, Croft 1982). The participants were asked to perform homework assignments between sessions. Each homework assignment was discussed during the first part of the following session.

In the *first session*, after the participants introduced themselves to each other, an overview of anxiety, test anxiety, and the treatment programme rationale was presented. The participants then had the opportunity to share with the group their own experiences of test anxiety. The participants then developed a scene that they associated with relaxation, and were introduced to the technique of tension-release relaxation. Homework consisted of practicing the tension-release relaxation and filling in a log of their progress, writing their relaxation scene on a card, and writing a moderate test anxiety-producing scene. In the *second session*, the participants' progress on the tension-release relaxation technique was discussed, and the therapist checked their moderate test anxiety scene. The remainder of the session focussed on teaching relaxation without tensing. The test anxiety scene was also introduced and alternated with the participants' imagining their relaxation scene. Homework consisted of relaxation without tensing, and filling in the relaxation log.

In *Session three* the participants were asked to initiate the relaxation process and to signal to the therapist when they were reasonably relaxed. The therapist then guided the participants in a sequence of relaxation - anxiety scene - relaxation, for as long as time permitted. Following this, the early warning signs of anxiety were discussed. Homework consisted of daily self-initiated relaxation in situations of minor stress, continuation of the relaxation log, and writing a high test -anxiety-producing scene.

In *Session four* the use of the relaxation scene was discontinued. The participants initiated relaxation, and were then instructed to imagine their moderate level test anxiety scene. The participants raised their hand when they were experiencing anxiety, and lowered their hand when they were relaxed again - hence they initiated when to return to relaxation. This procedure was alternated with the participants' high test- anxiety-producing scene for as long as time permitted. Homework consisted of monitoring early warning signs of stress in two ways: time monitoring and situational monitoring. Participants were encouraged to apply relaxation control if any signs of stress and or anxiety were apparent.

Session five and six utilized the skills learnt from the previo
participants greater responsibility in facing anxiety. The participants were instru
remain in their test anxiety scene whilst reintroducing relaxation control - whereas previously they had turned off their anxiety scene and initiated relaxation. The participants' alternated between their moderate and high test- anxiety-producing scene for as long as time permitted. Homework consisted of continuing the relaxation log, the time and situational monitoring, and the participants were further encouraged to employ the relaxation techniques in any situations they deemed as anxiety provoking.

Session seven was held a week after the previous session and was the beginning of stage two of the treatment programme. The session began with a discussion of the word "study" and what it means to each participant. The participants were then informed on the guidelines for effective study as outlined by Jackson et al (1982), set goals for their study for the next week and established a timetable for study. Homework consisted of recording adherence to their study timetable and bringing a textbook to study for the next session.

In *Session Eight,* the participants were introduced to Robinson's (1979 in Jackson et al, 1982) survey, question, read, recite, review(SQ3R) method of study, and practiced this for the remainder of the session with the material they had brought with them. Homework consisted of adherence to their study timetable and recording how they studied. The participants were encouraged to use the SQ3R method of study where appropriate.

In *session nine*, the focus was primarily on test-taking skills. The participants were informed of the recommended examination techniques as outlined by Jackson, et al

(1982) and discussed the logistics of incorporating the relaxation skills they had learned into test environments. Homework consisted of continuing their study timetable, and preparing for the test to be held in the final treatment session covering information from sessions seven and eight.

In *session ten*, the participants sat a test based on the study-skills component of the treatment programme. The content of the test is presented in Appendix H. Each participant then completed all of the post-treatment measures and a treatment programme evaluation.

Results

The results are presented in three sections. The first section presents raw scores, means, standard deviations, ranges, effect sizes and t-tests for the *Test Anxiety Inventory (TAI), Survey of Study habits and Attitudes (SSHA), State Trait Anxiety Inventory (STAI)* and the *Automatic Thoughts in Simulated Situation (ATSS)* measures respectively. Those participants, for whom there were multiple individual baseline scores on a single measure, had their scores averaged to give a single pre-treatment individual mean. All t-tests are one-tailed, with the exception of the study attitudes subscale of the *SSHA*. An Effect size was calculated from pr
the *TAI, SSHA, STAI* and *ATSS,* by taking the difference between the group pre-treatment mean and the group post-treatment mean and then dividing that by the group pre-treatment SD [M1-M2 \ SD]

The second section presents in multiple-baseline-across-groups format the *TAI, SSHA* and *STAI* measures to assess general relationships between interaction and outcome.

The third section presents the results from the Test Anxiety Treatment Programme Evaluation.

3.1 Measures

Test Anxiety Inventory *(TAI)*

The pre- and post-treatment scores on the worry and emotionality components of the *TAI* are presented in Table 1. The group pre-treatment mean on the worry subscale was 21.7 (SD = 4.3; range = 15) while the group post-treatment mean on the worry subscale was 14.7 (SD = 4.9; range = 12). The reduction in average worry scores from pre- to post- treatment was statistically significant [t (8) = 5.27, p<. 001]. An effect size of 1.6 was found between the pre-treatment and post-treatment means on the worry subscale.

The group pre-treatment mean on the emotionality subscale was 27.9 (SD = 3.55; range = 10) while the group post-treatment mean on the emotionality subscale was

20.8 (SD = 5.3; range = 16). The reduction in mean emotionality scores from pre- to post-treatment was statistically significant [t (8) = 4.45, p<. 001]. An effect size of 2.0 was found between the pre-treatment and post-treatment means on the emotionality subscale.

TABLE 1. Pre- and post-treatment scores on the worry and emotionality components of the *TAI*

	TAI									
	Worry					Emotionality				
Participants	Pre 1	Pre 2	Pre 3	Participant Pre Mean	Post	Pre 1	Pre 2	Pre 3	Participant Pre Mean	Post
1	30			30	20	30			30	20
2	21			21	16	25			25	19
3	25			25	14	29			29	30
4	17			17	9	28			28	14
5	24	21		22.5	20	26	21		23.5	22
6	21	20		20.5	21	32	32		32	26
7	20	21		20.5	12	32	27		29.5	17
8	15	15	16	15.3	8	32	32	32	32	24
9	25	23	22	23.3	12	23	20	24	22.3	15
				M= 21.7 SD = 4.3 Range =15	M = 14.7 SD = 4.9 Range = 12				M=27.9 SD= 3.55 Range = 10	M= 20.8 SD = 5.3 Range = 16

The pre- and post-treatment scores on the total *TAI* are presented in Table 2. The group pre-treatment mean on the total *TAI* was 62.3 (SD = 6.10; range = 23), while the post-treatment mean on the total *TAI* was 44.10 (SD = 9.55; range = 27). The reduction in the total TAI means from pre- to post-treatment was statistically significant [t (8) = 6.44, p<. 001]. An effect size of 2.9 was found between the pre-treatment and post-treatment means on the total *TAI.*

TABLE 2. Pre- and post-treatment scores on the total *TAI* measure

TAI					
Total Score					
Participants	Pre 1	Pre 2	Pre 3	Participant Pre Mean	Post
1	74			74	49
2	56			56	44
3	68			68	57
4	60			60	30
5	62	51		56.5	51
6	65	67		66	55
7	66	62		64	39
8	59	61	58	59.3	39
9	59	55	58	57.3	33
				M =62.3 SD = 6.10 Range = 23	M=44.10 SD = 9.55 Range = 27

The participants' percentile ranks as compared to normative data (Spielberger, 1980) are presented in Table 3. The Participants' individual mean scores pre- and post-treatment for the worry, emotionality and total *TAI* components of the *TAI* were compared to normative data (Spielberger, 1980). With the exception of participant six on the worry subscale, and participant three on the emotionality subscale, the general trend is a reduction on all subscales of the *TAI.*

TABLE 3. Participants' Pre- and Post *TAI* percentile ranks based on normative data. *

	TAI					
	Worry		Emotionality		*TAI* Total	
	Pre	Post	Pre	Post	Pre	Post
Participants						
1 (f)	100	90	99	74	99	82
2 (m)	87	66	82	56	83	58
3 (f)	94	56	93	99	95	84
4 (f)	71	16	91	29	88	21
5 (m)	90.5	90	88	84	90.5	85
6 (f)	86	87	100	86	94	81
7 (f)	86	43	94	47	92	47
8 (f)	70	14	100	89	93.5	
9 (m)	94.5	51	87	46	92	42

* *TAI* norms are based on 1, 449 undergraduates (654 males, 795 females) from the University of South Florida (Spielberger, 1980).

The comparisons of the participants' scores with normative data (Spielberger, 1980) on the *TAI* measure are presented in Table 4. The mean and SD of the participant's raw scores on the total *TAI*, worry, and emotionality components of the *TAI* measure were compared to the means and standard deviations of undergraduate college norms (Spielberger, 1980). The participants' post-treatment means on all of the subscales of the *TAI* fall within one SD of the mean of the normative data.

TABLE 4.Participants' mean and standard deviation scores on the *TAI* total, worry, and emotionality subscales compared to normative data*

	Participants N=9		College Norms N = 1,449
	Pre	Post	
TAI total			
Mean	62.3	44.10	40.6
SD	6.10	9.55	13.10
Worry			
Mean	21.7	14.7	14.3
SD	3.55	5.3	5.3
Emotionality			
Mean	27.9	20.7	17.9
SD	4.3	4.9	5.9

* *TAI* norms are based on 1, 449 undergraduates (654 males, 795 females) from the University of South Florida (Spielberger, 1980).

Survey of Study Habits and Attitudes *(SSHA)*

The pre- and post-treatment scores on the study habits and study attitudes components of the *SSHA* are presented in Table 5. The group pre-treatment mean on the study habits subscale was 23.8 (SD = 10.8; range = 37), while the post-treatment mean on the study habits subscale was 43.8 (SD = 14.10; range = 46). The difference for the pre-treatment and post-treatment study habits means was statistically significant [t (8) = -4.39, p<. 001]. An effect size of 1.9 was found between the pre-treatment and post-treatment means on the study habits subscale of the *SSHA* subscale.

The group pre-treatment mean on the study attitudes subscale was 48 (SD = 8.9; range = 31) while the post-treatment mean on the study habits subscale was 58.9 (SD = 10.8; range = 36. The difference was statistically significant [t (8) = -3.56, p<. 05]. An effect size of 1.2 was found between the pre-treatment and post-treatment means on the study attitudes subscale of the *SSHA* measure.

TABLE 5. Pre- and post-treatment data of the study habits and study attitudes components of the *SSHA*

	SSHA										
	+ Study Habits						* Study Attitudes				
Participants	Pre 1	Pre 2	Pre 3	Participant Pre Mean	Post		Pre 1	Pre 2	Pre 3	Participant Pre Mean	Post
1	16			16	21		39			39	49
2	12			12	33		43			43	63
3	18			18	67		50			50	42
4	19			19	41		57			57	68
5	24	29		26.5	33		35	45		40	55
6	19	22		20.5	40		51	54		52.5	59
7	30	46		38	51		66	64		65	78
8	49	39	46	44.6	57		48	44	45	45.6	52
9	24	17	17	19.3	51		44	41	41	40.3	64
				M= 23.8 SD =10.8 Range = 37	M = 43.8 SD = 14.10 Range = 46					1=48 D = 8.9 ange = 31	M = 58.9 SD = 10.8 Range = 36

+ Study Habits = Delay Avoidance and Work Methods

* Study Attitudes = Teacher Approval and Educational Acceptance

Note: High scores on *SSHA* are characteristic of students' who have good study habits and attitudes w low score represents poor study habits and attitudes

The pre- and post-treatment scores on the study orientation component of the *SSHA* are presented in Table 6. The group pre-treatment mean on the study orientation subscale was 71.9 (SD = 16; range = 57) while the post-treatment mean on the study orientation subscale was 102.7 (SD = 16.9; range = 59). The difference for was statistically significant [t (8) = -7.02, p<. 001]. An effect size of 1.9 was found between the pre-treatment and post-treatment means on the study orientation subscale of the *SSHA*.

TABLE 6. Pre- and post-treatment scores of study orientation on the *SSHA*

SSHA					
Study Orientation*					
Participants	Pre 1	Pre 2	Pre 3	Participant Pre Mean	Post
1	56			56	70
2	55			55	96
3	68			68	109
4	76			76	109
5	59	74		66.5	88
6	70	76		73	99
7	96	110		103	129
8	97	83	91	90.3	109
9	68	53	58	59.6	115
				M = 71.9 SD = 16 Range = 57	M= 102.7 SD = 16.9 Range = 59

* Study Orientation = study habits + study attitudes
Note: High scores on *SSHA* are characteristic of students' who have good study habits and attitudes, whilst a low score represents poor study habits and attitudes

The participants' percentile ranks in relation to normative data (Brown and Holtzman, 1967) are presented in Table 7. With the exception of participant three on the study attitudes subscale, the general trend is an improvement on all subscales of the *SSHA*.

TABLE 7 Participants' Pre- and Post *SSHA* percentile ranks based on normative data.*

	SSHA					
	Study Habits		Study Attitudes		Study Orientation	
Participants	Pre	Post	Pre	Post	Pre	Post
1	3	5	5	15	3	10
2	1	20	10	45	3	25
3	5	80	20	10	10	40
4	5	30	30	55	10	40
5	10	20	10	25	5	20
6	5	30	20	35		
7	25	50	50	80	[illegible]	[illegible]
8	40	65	10	20	20	40
9	5	50	10	45	5	50

* *SSHA* norms are based on 3,054 undergraduates from nine colleges throughout the United States (Brown and Holtzman, 1967).
Note: High percentile scores on *SSHA* are characteristic of students' who have good study habits and attitudes, whilst a low percentile score represents poor study habits and attitudes

The comparisons of the participants' scores with normative data (Brown and Holtzman, 1967) on the *SSHA* measure are presented in Table 8. The mean and SD of the participant's raw scores on the study habits, study attitudes, and study orientation components of the *SSHA* measure were compared to the means and SD of undergraduate college norms (Brown and Holtzman, 1967). The participants' post-treatment means on all of the subscales of the *SSHA* fall within one SD of the mean of the normative data.

TABLE 8. Participants' mean and standard deviation scores on the *SSHA* compared to normative data*

	Participants N=9		College Norms N = 3,054
	Pre	Post	
Study Habits			
Mean	23.8	43.8	50.1
SD	8.9	10.8	17.5
Study Attitudes			
Mean	48	58.9	64.1
SD	10.8	14.10	14.8
Study Orientation			
Mean	71.9	102.7	114.2
SD	16	16.9	29.7

* *SSHA* norms are based on 3,054 undergraduates from nine colleges throughout the United Sta (Brown and Holtzman, 1967).

State Trait Anxiety Inventory *(STAI)*

The pre- and post-treatment scores on the state anxiety and trait anxiety components of the *STAI* are presented in Table 9. The group pre-treatment mean on the state anxiety subscale was 52.4 (SD = 17.10; range = 55) while the post-treatment mean on the state anxiety subscale was 31 (SD = 8.10; range = 21). The reduction from the pre- to post-treatment state anxiety means was statistically significant [t (8) = 6.39, p<.001]. An effect size of 1.3 was found between the pre-treatment and post-treatment means on the state anxiety subscale of the *STAI.*

The group pre-treatment mean on the trait anxiety subscale was 47.4 (SD = 7.8; range = 21) while the post-treatment mean on the trait anxiety subscale was 37.55 (SD = 6; range = 21). The reduction from the pre- to post-treatment trait anxiety means was statistically significant [*t* (8) = 5.71, p<. 001.] An effect size of 1.3 was found between the pre-treatment and post-treatment means on the trait anxiety subscale of the *STAI.*

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TABLE 9. Pre- and post-treatment scores of State and Trait anxiety on the STAI

	STAI										
	State Anxiety						Trait Anxiety				
Participants	Pre 1	Pre 2	Pre 3	Participant Pre Mean	Post		Pre 1	Pre 2	Pre 3	Participant Pre Mean	Post
1	61			61	34		61			61	42
2	57			57	32		44			44	38
3	80			80	39		41			41	39
4	63			63	41		42			42	34
5	65	51		58	37		61	57		59	50
6	31	25		28	20		41	40		40.5	29
7	60	51		55.5	33		49	52		50.5	34
8	25	31	27	27.6	20		42	52	45	46.3	38
9	53	34	38	41.6	23		43	42	43	42.6	34
				M= 52.4 SD=17.10 Range = 55	M = 31 SD = 8.10 Range = 21					M= 47.4 SD= 7.8 Range = 21	M = 37.55 SD = 6 Range = 21

The comparisons of the participants' scores with normative data (Knight, Waal-Manning and Spears (1983) on the *STAI* measure are presented in Table 10. The mean and SD of the participants' raw scores on the state anxiety and trait anxiety components of the *STAI* measure were compared to the means and SD's of New Zealand norms for ages 19-29. The participants' post-treatment means on both state and trait anxiety fall within one SD of the mean of the normative data (Knight et al, 1983).

TABLE 10. Participants' Pre- and Post A-State and A- Trait means and standard deviations compared with general population norms for New Zealand*

	Participants N=9		NZ norms N = 267
	Pre	Post	
A State scale			
Mean	52.4	31	31.9
SD	17.10	8.10	6.9
T State scale			
Mean	47.4	37.55	34.8
SD	7.8	6	7.9

* New Zealand norms for ages 20-29 for both males and females (Knight, Waal-Manning & Spears 1983)

A summary of the pre- to post-treatment effect sizes for the *TAI, SSHA* and *STAI* are presented in Table 11.

TABLE 11. Participant's pre-to post treatment effect sizes on the *TAI, SSHA*, and *STAI.*

Measure	Effect Size
TAI	
Worry	1.6
Emotionality	2
Total TAI	2.9
SSHA	
Study habits	1.9
Study attitudes	1.2
Study orientation	1.9
STAI	
State anxiety	1.3
Trait Anxiety	1.3

Automatic Thoughts in Simulated Situations *(ATSS)*

Each participant responded with statements to 13 scenarios pre- and post treatment. Each statement was coded into one of seven categories (see Appendix F). The dysfunctional beliefs, poor coping skills, and negative statement codes are classified as negative, whilst functional beliefs, good coping skills and positive statement codes are classified as positive. As indicated in Figure 7, the pre-treatment frequency of negative codes aggregated over all participants, was 452, whilst post-treatment the frequency was 117. The frequency of positive codes aggregated over all participants pre-treatment was 253, whilst post-treatment the frequency was 484

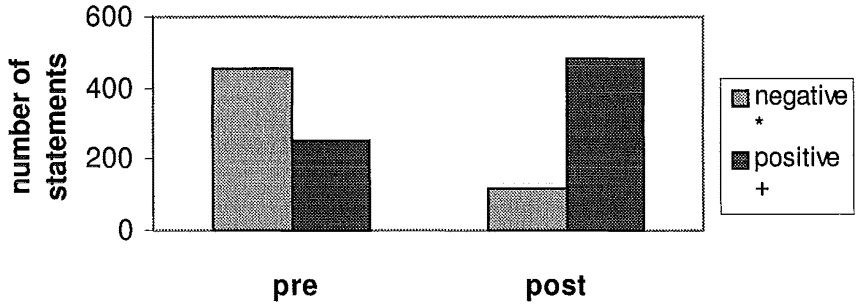

FIGURE 7. Frequency of positive and negative codes pre- and post-treatment on the *ATSS* aggregated over all participants
* Negative codes = the categories of dysfunctional beliefs, poor coping skills and negative statements
+ Positive codes = the categories of functional beliefs, good coping skills and positive statements

The frequencies of each of the seven codes on the *ATSS* both pre- and post-treatment are shown in Figure 8. Each of the negative codes reduced from pre- to post-treatment. The frequency of the positive codes increased, with the exception of positive statements. The pre-treatment mean for dysfunction beliefs was 9.8 (SD = 4.9) while the post-treatment mean for dysfunctional beliefs was 0.9 (SD = 1.5). The reduction from the pre-treatment and post-treatment dysfunctional beliefs code means was statistically significant [t (12) = 7.94, p<. 001]. An effect size of 1.8 was found between the pre-treatment and post-treatment means for the dysfunctional belief code on the *ATSS*. The pre-treatment mean for poor coping skills was 15.4 (SD = 3.6) while the post-treatment mean for poor coping skills was 5.8 (SD = 2.8). The reduction from the pre-treatment and post-treatment poor coping skills code means was statistically

significant [t (12) = 7.11, p<.001]. An effect size of 2.6 was found between the pre-treatment and post-treatment means for the poor coping skills code on the *ATSS*. The pre-treatment mean for negative statements was 9.6 (SD = 2.6) while the post-treatment mean for negative statements was 2.4 (SD = 2.1). The reduction from the pre-treatment and post-treatment negative statement code means was statistically significant [t (12) = 15.44, p<.001]. An effect size of 2.8 was found between the pre-treatment and post-treatment means for the negative statement code on the *ATSS*.

The pre-treatment mean for functional beliefs was 4 (SD = 1.7), while the post-treatment mean for functional beliefs was 6.9 (SD = 3.9). The increase from the pre-treatment and post-treatment functional beliefs code means v
significant [t (12) = -2.44, p<.05]. An effect size of -1.6 was found between the treatment and post-treatment means for the functional belief code on the *ATSS*. The pre-treatment mean for good coping skills was 10.9 (SD = 7.8) while the post-treatment mean for good coping skills was 24.4 (SD = 10). The increase from the pre-treatment and post-treatment good coping skills code means was statistically supported [t (12) = -8.07, p<.001]. An effect size of -1.7 was found between the pre-treatment and post-treatment means for the good coping skills code on the *ATSS*. The pre-treatment mean for positive statements was 4.6 (SD = 3.2) while the post-treatment mean for positive statements was 6 (SD = 5.8). The results of a one-tailed t-test between the pre- and post-treatment means for the positive statement code were not significant at the 0.05 or 0.001 level. An effect size of -0.4 was found between the pre-treatment and post-treatment means for the positive statement code on the *ATSS*.

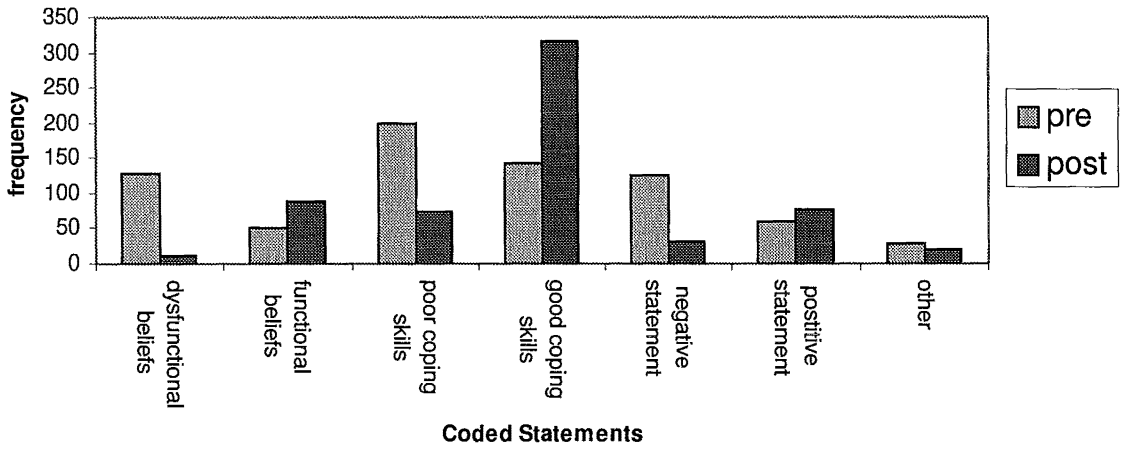

FIGURE 8. Frequency of coded statements on the *ATSS* pre- and post-treatment.

The frequency of coded statements for each participant pre- and post-treatment graphically represented in Figure 9. Points falling on the diagonal line indicate no change between pre- and post-treatment. Points falling above the line indicate an increase in the frequency of the behaviour. In the case of functional beliefs, good coping skills and positive statements, this indicates movement in the therapeutic direction. Conversely, points falling below the line denote a decrease in the frequency of the behaviour. As shown on Figure 9, dysfunctional beliefs, poor coping skills and negative statements all fell below the diagonal line from pre- to post-treatment.

The greatest magnitude of change was an increase in the frequency of good coping skills and a decrease in frequency of poor coping skills where all points fell well above or below the diagonal. The frequency of dysfunctional beliefs decreased post-treatment, however, for most participants little change was noted for the functional beliefs code pre- to post-treatment. The frequency of statements shows a similar pattern. A decrease in negative statements was noted post-treatment and participants exhibited a variable response following treatment with some increasing and some decreasing the number of positive statements.

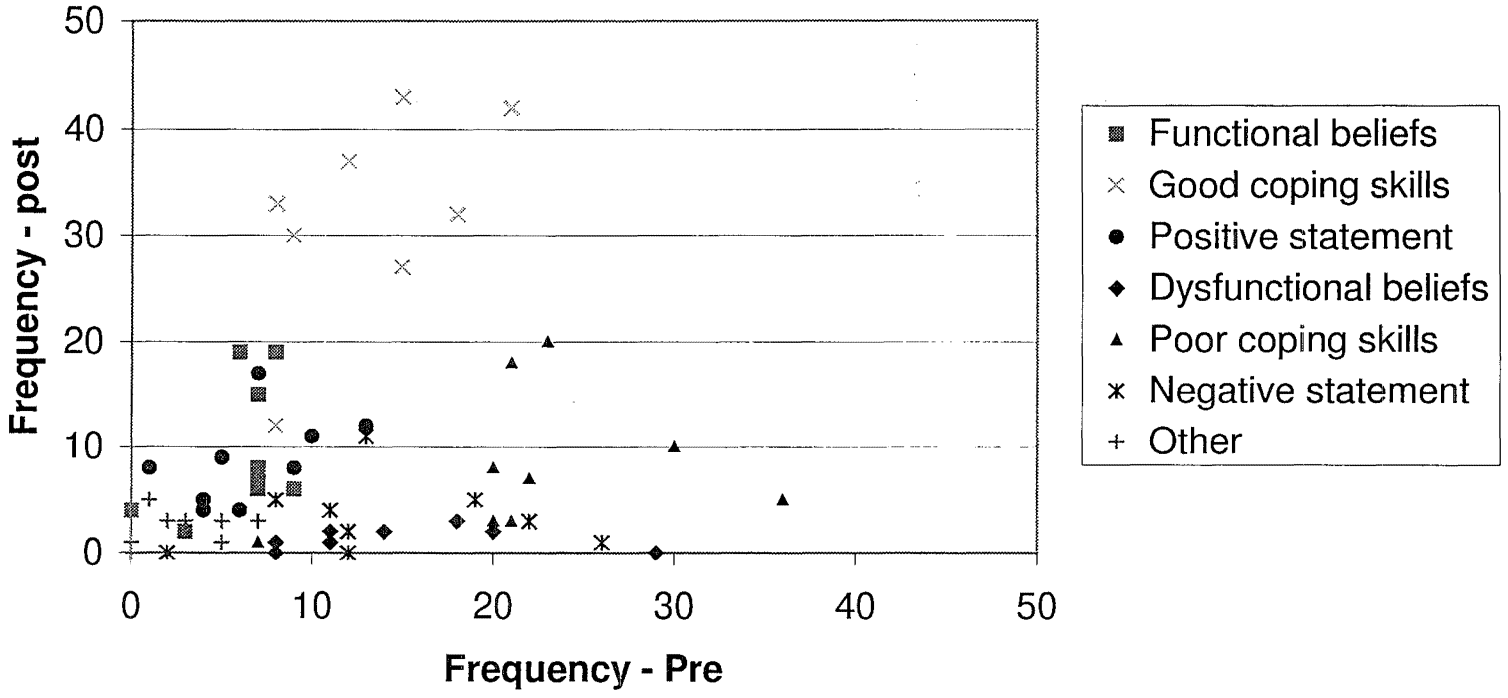

FIGURE 9. The distribution of coded statements on the ATSS pre- and post treatment.

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Individual Analyses of the *ATSS*

Participant One (Figure 10): All coded statements for participant one on the *ATSS* showed a marked change in frequency in the therapeutic direction between pre- and post-treatment.

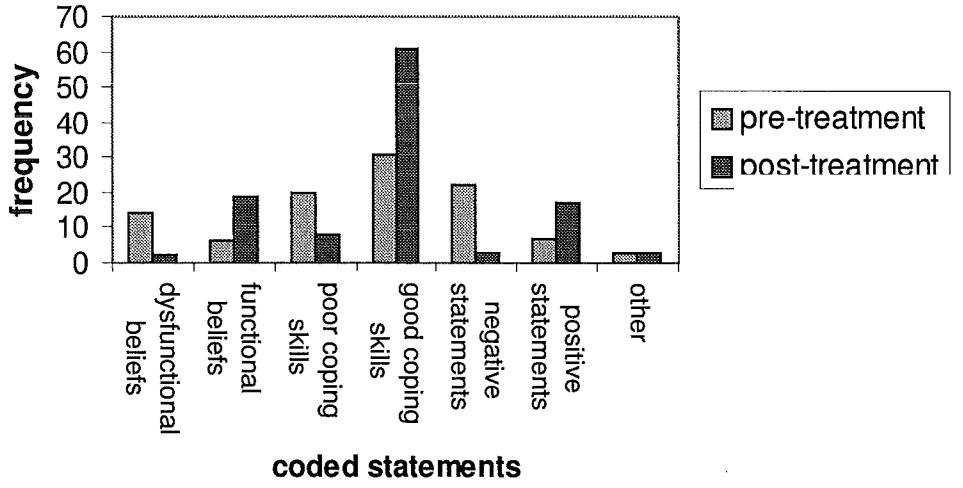

FIGURE 10. Frequency of coded statements pre- and post-treatment on the *ATSS* for participant one.

Participant two (Figure 11): Showed a slight change in the therapeutic direction for the coded statements of poor coping skills, negative statements, and functional beliefs from pre- to post-treatment on the *ATSS*. Participant two showed a substantial change in frequency in the therapeutic direction for the codes of dysfunctional beliefs and good coping skills.

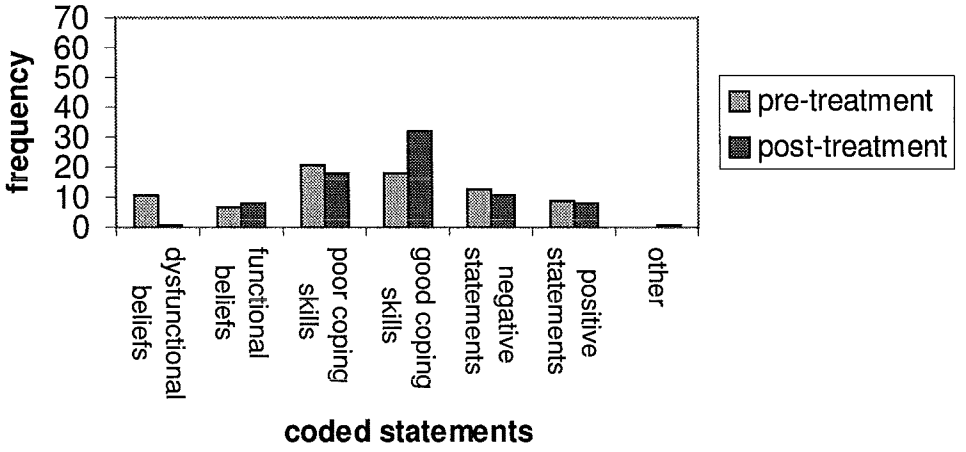

FIGURE 11. Frequency of coded statements pre- and post-treatment on the *ATSS* for participan

Participant three (Figure 12): With the exception of positive statements and functional beliefs, all coded statements on the *ATSS* showed a clear change in the therapeutic direction between pre- and post-treatment.

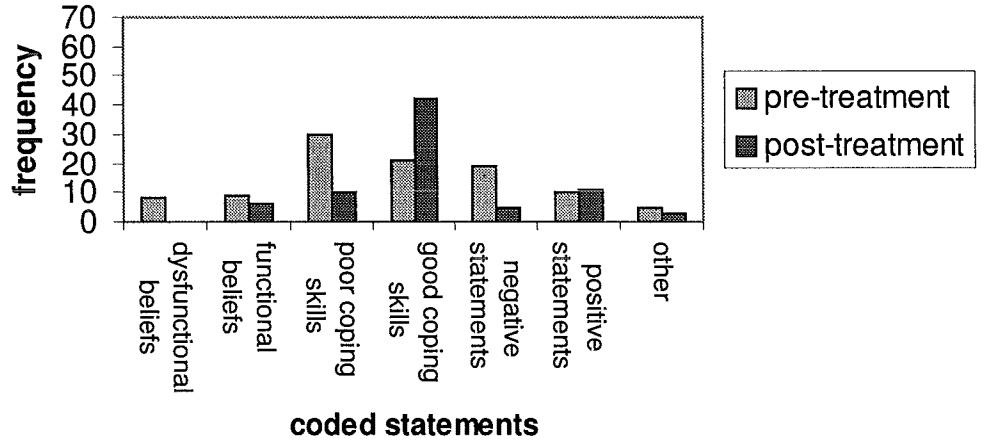

FIGURE 12. Frequency of coded statements pre- and post-treatment on the *ATSS* for participant three.

Participant four (Figure 13): showed a marked changed in the therapeutic direction on the coded statements of dysfunctional beliefs, poor coping skills, good coping skills and negative statements from pre- to post-treatment on the *ATSS*. The codes of functional beliefs and positive statements show a slight decrease from pre- to post-treatment.

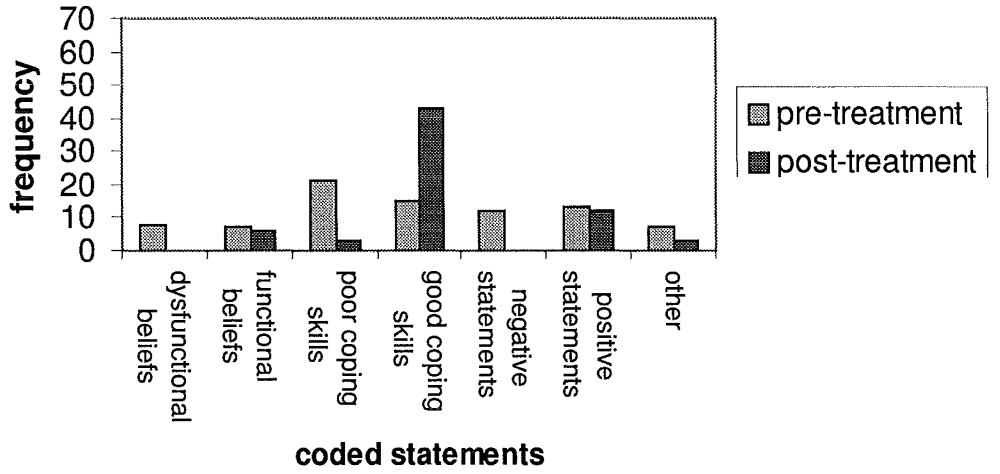

FIGURE 13. Frequency of coded statements pre- and post-treatment on the *ATSS* for participant four.

Participant five (Figure 14): showed a clear change in the therapeutic direction on the coded statements of dysfunctional beliefs, poor coping skills, good coping skills and negative statements from pre- to post-treatment on the *ATSS*. The functional beliefs code shows a slight decrease in frequency from pre- to post-treatment, whilst the positive statement code remained unchanged.

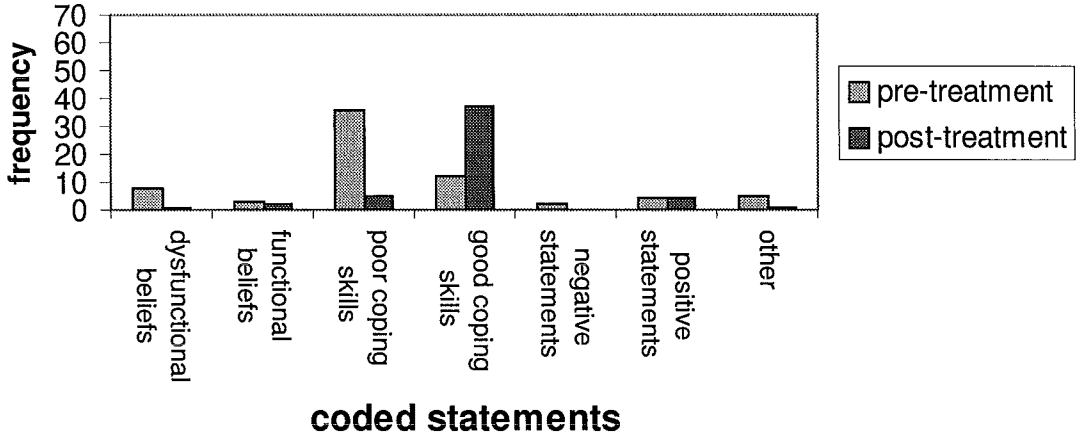

FIGURE 14. Frequency of coded statements pre- and post-treatment on

Participant six (Figure 15): All coded statements on the *ATSS* showed a substantial change in the therapeutic direction between pre- and post-treatment.

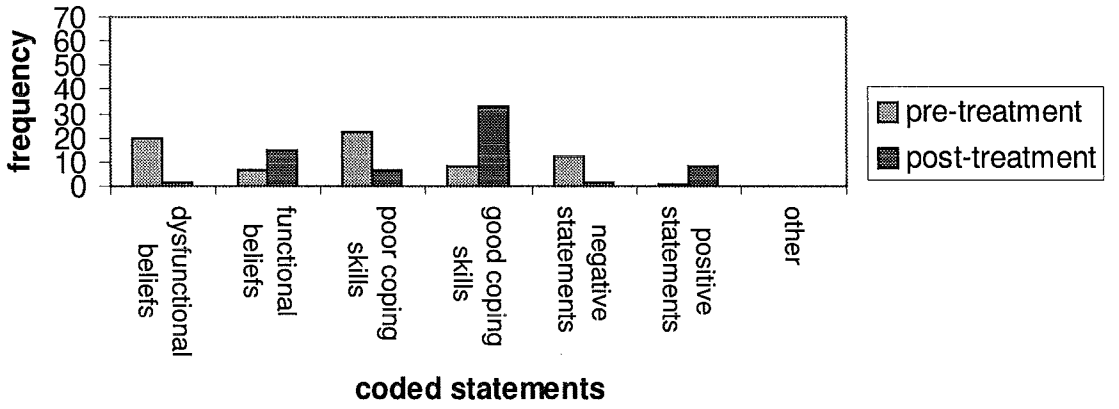

FIGURE 15.Frequency of coded statements pre- and post-treatment on the ATTS for participant six.

Participant seven (Figure16): All coded statements on the *ATSS* showed a marked change in the therapeutic direction between pre- and post-treatment, with the exception of the positive statement code, which decreased, post-treatment.

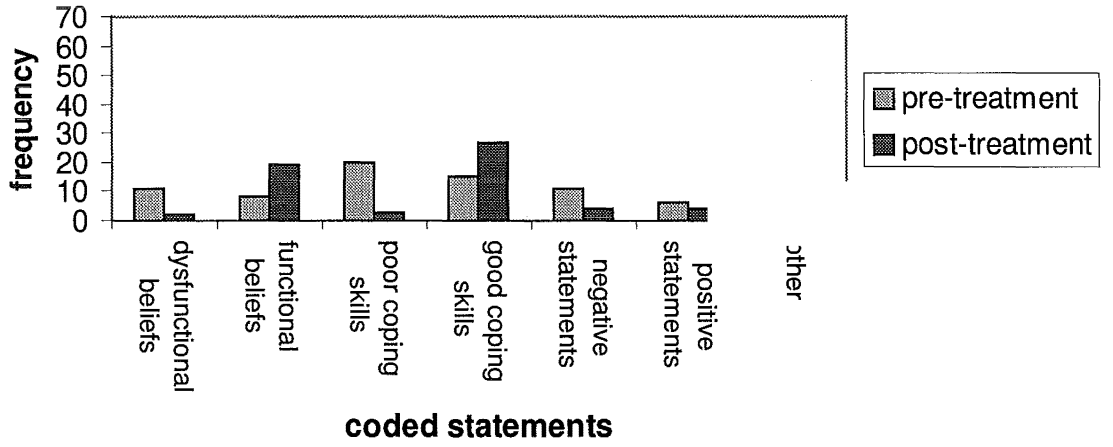

FIGURE 16. Frequency of coded statements pre- and post-treatment on the *ATSS* for participant seven.

Participant eight (Figure 17): showed a clear therapeutic change on the dysfunctional belief code on the *ATSS* from pre- to post-treatment. The remainder of the coded statements show a slight change in the therapeutic direction from pre- to post-treatment.

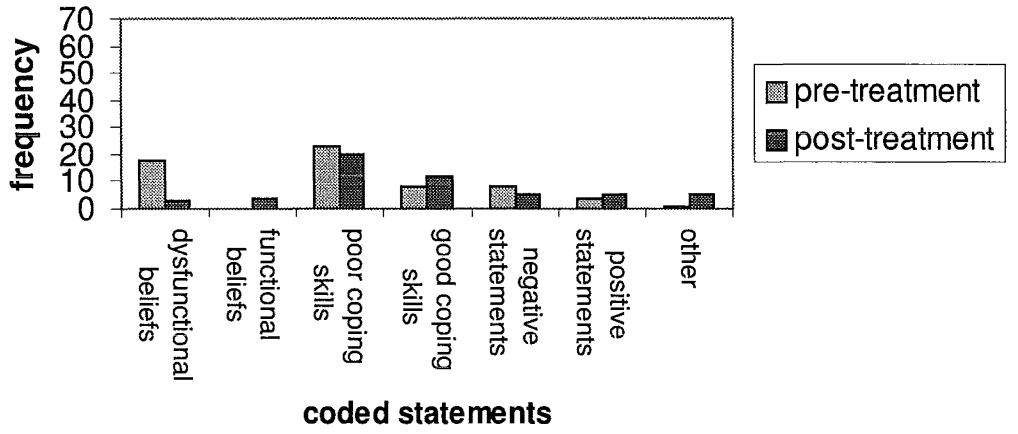

FIGURE 17. Frequency of coded statements pre- and post- treatment on the *ATSS* for participa

Participant nine (Figure 18): All coded statements on the *ATSS* showed a marked change in the therapeutic direction between pre- and post-treatment, with the exception of functional beliefs which remained unchanged.

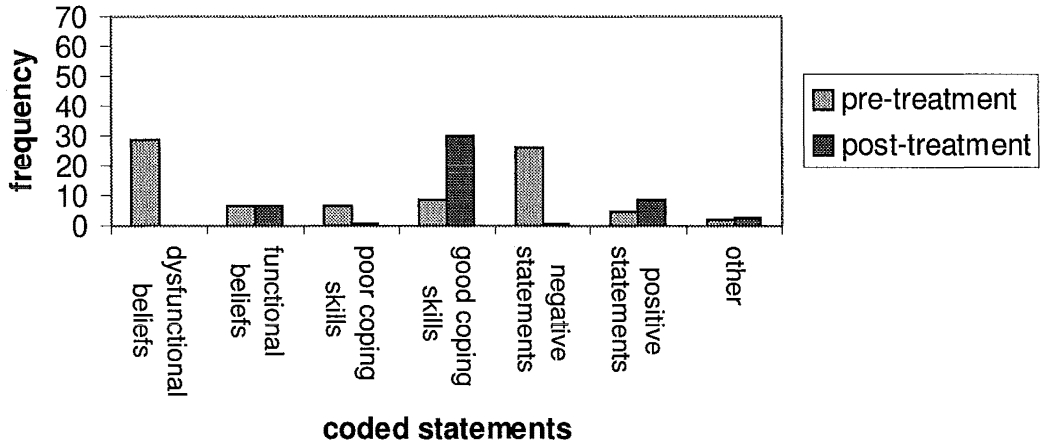

FIGURE 18. Frequency of coded statements pre- and post-treatment on the *ATSS* for participant nine.

3.2 Multiple-baseline analyses

The participants were divided into three groups. Group one consisted of participants one to four, who completed the baseline measures of the *TAI, SSHA* and the *STAI* one-week before their treatment sessions commenced. Group two consisted of participants five to seven, who completed the baseline measures of the *TAI, SSHA* and the *STAI* firstly, at the same time as group one, and then two weeks after the initial baseline measures were completed. Group two then commenced treatment. Group three consisted of participants eight and nine, who completed the baseline measures of the *TAI, SSHA* and the *STAI* firstly, at the same time as group one, then at the same time as group two, and thirdly, two weeks after the second baseli
completed. Group three then commenced treatment. This staggered sequence o introduction of participants to treatment permitted the data to be analyzed as a multiple- baseline- across- groups design.

TAI

Figure 19 shows that in baseline, worry scores were moderate to high (greater than 10 in all cases) and clearly stable over the two and four weekly measurements (for participants five to seven, and eight to nine respectively). Post-treatment worry scores were lower than baseline scores for all participants except for participants five and six. No participant increased their worry score after treatment relative to baseline, and the magnitude of change for those who reduced their score was always greater post-treatment, than any changes observed in the repeated baseline measures. Participants one, two, three, four, seven, eight and nine, therefore show a treatment effect on the worry subscale of the *TAI* measure.

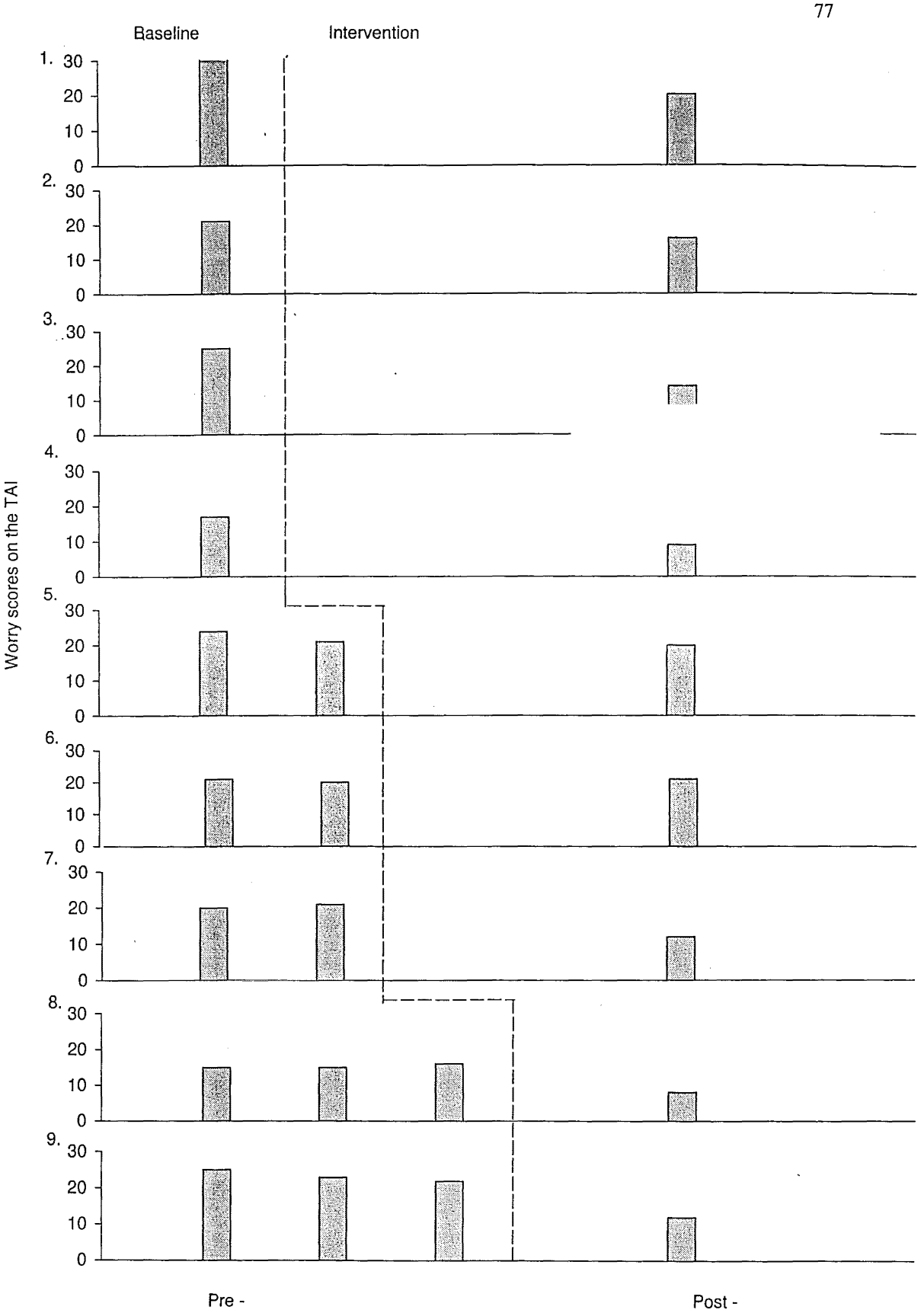

FIGURE 19. Bar graph showing participants' pre- and post- worry scores on the TAI

Figure 20 shows that in baseline, emotionality scores were high (greater than 20 in all cases) and stable over the two and four weekly measurements (for participants five to seven and eight to nine respectively). Post-treatment emotionality scores were lower than baseline scores for all participants with the exception of participant five who slightly increased their score post-treatment. The amount of change for the participants who reduced their score was always greater post-treatment, than any changes observed in the repeated baseline measures. Participants one, two, four, six, seven, eight and nine therefore, show a treatment effect on the emotionality subscale of the *TAI.*

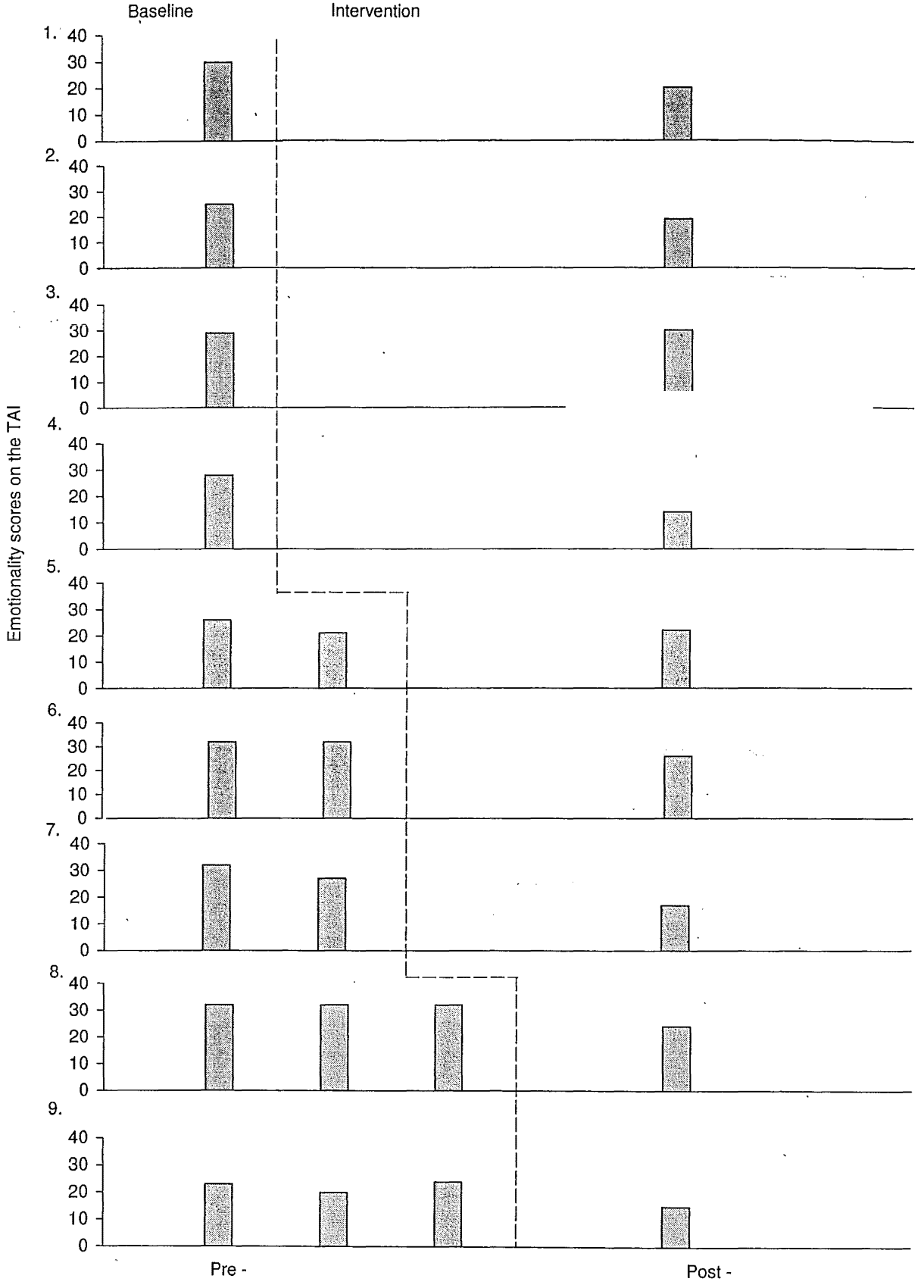

FIGURE 20. Bar graph showing participants' pre- and post- emotionality scores on the TAI

SSHA

Figure 21 shows that in baseline, study habits scores were low to moderate (range = 12-46) and stable over the two and four weekly measurements (for participants five to seven and eight to nine respectively). Post treatment scores were higher than baseline scores for all participants. The scale of change in study habits scores was greater post-treatment than any change that was observed in the repeated baseline measures. An exception of this is participant five and participant seven who showed a change in the therapeutic direction on their second baseline measure. Participant nine displayed some variability in their baseline measures but the trend was not in the therapeutic [illegible] treatment. Participants one, two, three, four, six, eight and nine show a treatment effect on the study habits scale of the *SSHA*.

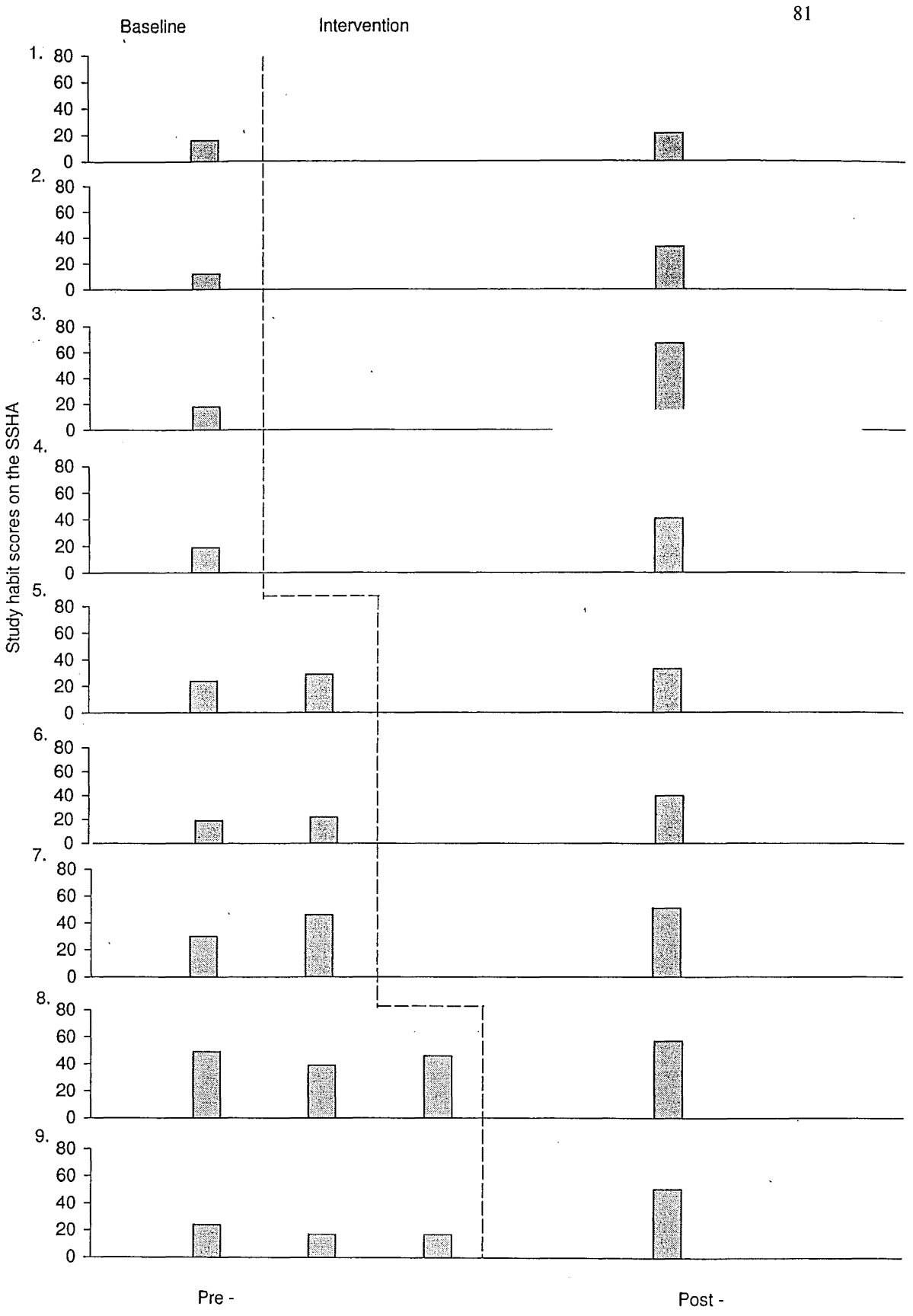

FIGURE 21. Bar graph showing participants' pre- and post- study habit scores on the SSHA

Note - A high score on the SSHA indicates good study habits while a low score indicates poor study habits

The participants' study attitudes scores on the *SSHA* are presented in Figure 22. As is shown, the baseline study attitude scores were moderate (range = 35 - 66) and clearly stable over the two or four weekly measurements (for participants five to seven and eight to nine respectively). Post- treatment study attitude scores were higher than baseline scores for all participants except for participant three. The extent of the change in study attitudes for those who increased their score was always greater post-treatment, than any changes observed in the repeated baseline measures, with the exception of participants four and five who scores changed in the therapeutic direction during the baseline phase. Participants one, two, four, seven, eight and nine, therefore, show a treatment effect on the study attitudes subscale of the *SSHA*.

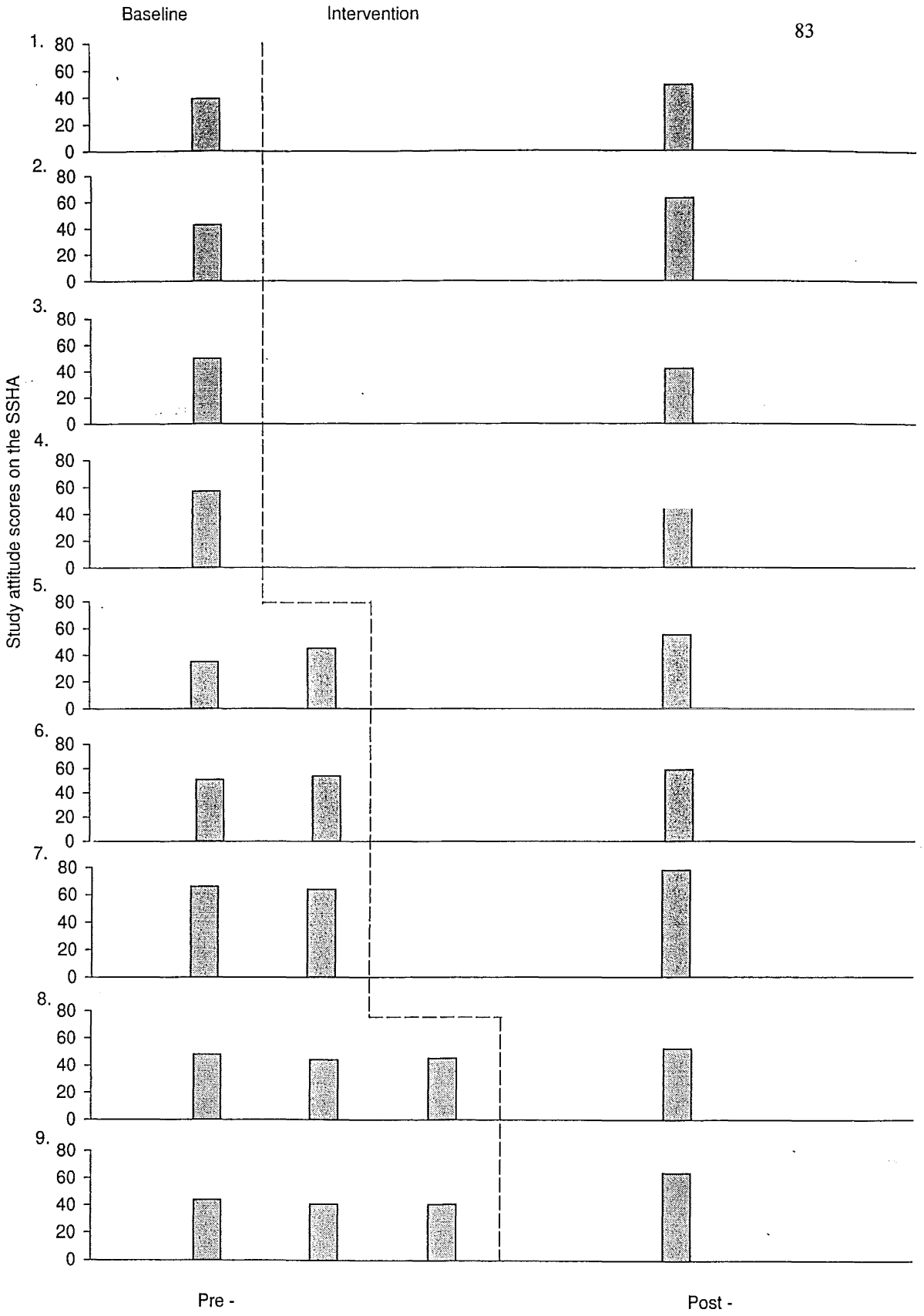

FIGURE 22. Bar graph showing participants' pre- and post- study attitude scores on the SSHA

Note - A high score on the SSHA indicates good study attitudes while a low score indicates poor study attitudes

STAI

The participants' state anxiety scores on the S*TAI* are presented in Figure 23. As is shown, baseline state anxiety scores were moderate to high, and relatively stable over the two and four weekly measurements. It should be noted that due to the nature of state anxiety and its transience, the scores are expected to vary to some degree. Post-treatment state anxiety scores were lower than baseline scores for all participants. No participant increased his or her state anxiety score after treatment relative to baseline. The scale of change in the state anxiety scores was always greater post-treatment than any change observed in the repeated baseline measure, with the exception [illegible] score changed in the therapeutic direction in the baseline phase. Participants one, two, three, four, five, seven, eight and nine, therefore, show a treatment effect on this measure.

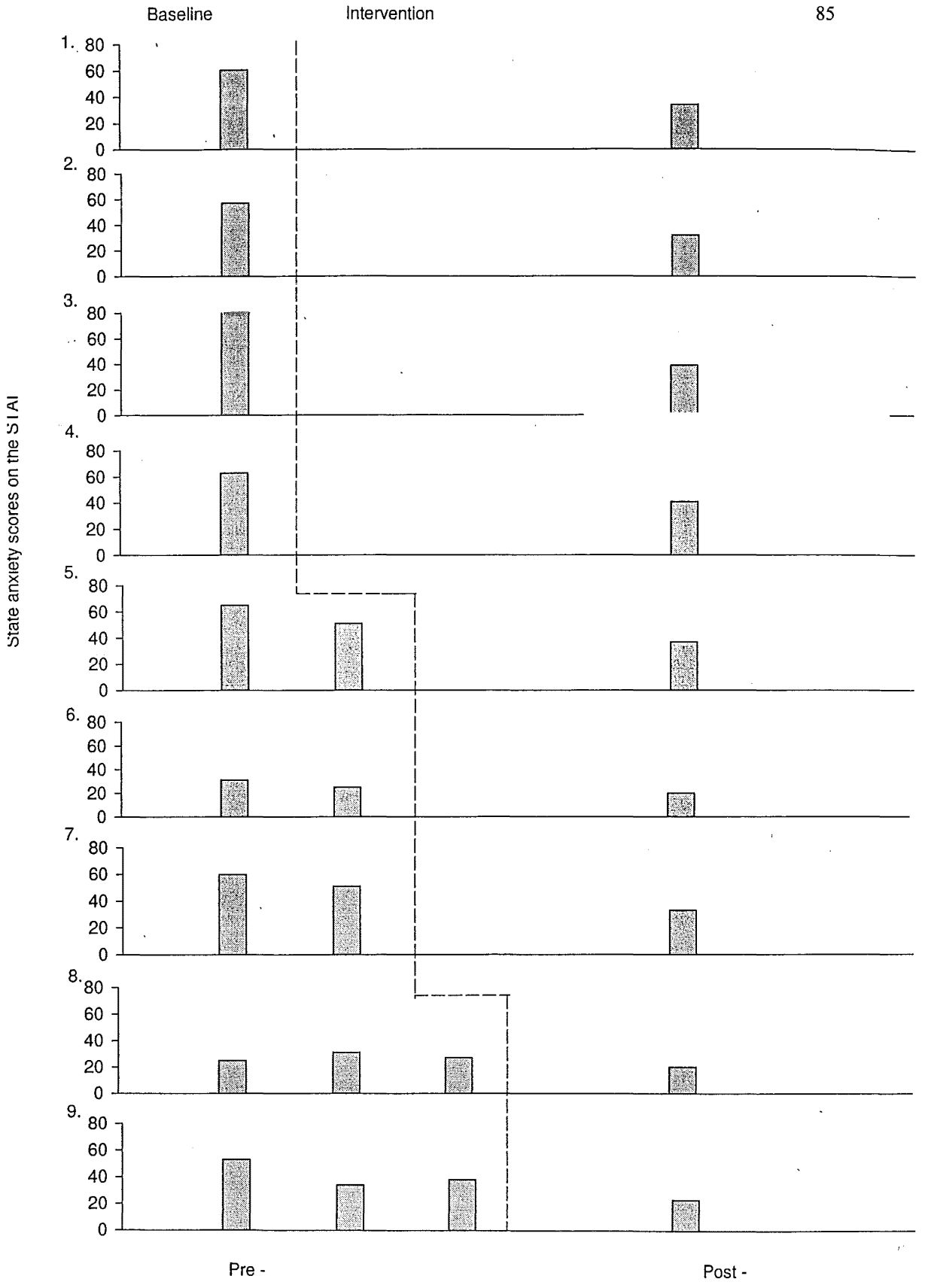

FIGURE 23. Bar graph showing participants' pre- and post- state anxiety scores on the STAI

Figure 24 shows that the baseline trait anxiety scores were moderate to high (greater than 42 in all cases) and clearly stable over the two or four weekly measures (for participants five to seven and eight to nine respectively). Post-treatment trait anxiety scores were lower than baseline scores for all participants. No participant increased his or her state anxiety score after treatment relative to baseline. The size of the change in trait anxiety scores was always greater post-treatment than any changes observed in the repeated baseline measures, with the exception of participant eight whose baseline scores on this measure were variable. Participant three showed a slight change in the therapeutic direction post-treatment, but the magnitude is not great enough
Participants one, two, four, five, six, seven and nine, therefore, show a treatment effect on this measure.

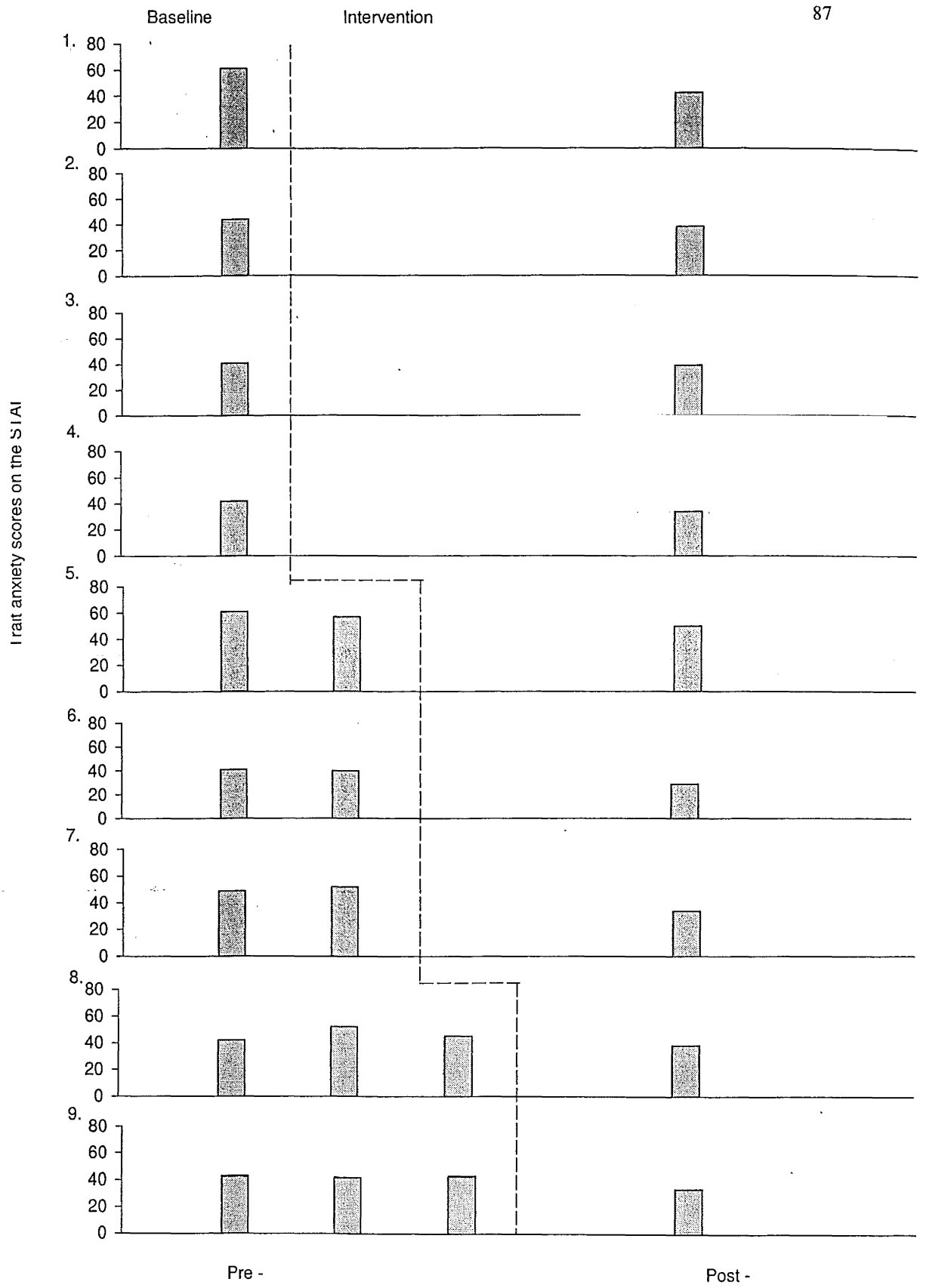

FIGURE 24. Bar graph showing participants' pre- and post- trait anxiety scores on the STAI

3.3 Treatment programme evaluation

The test anxiety treatment programme evaluation results for those questions in a Likert Scale format are presented in Table 12. The mean for question one was 4.6 (range = 1) indicating the programme was well to highly organised. The mean for question six was 2.1 (range = 1) proposing the length of the sessions was about right. The mean for question seven was 2.7 (range = 1) suggesting the amount of homework was just right. The skill of relaxation was found to be often useful with a mean of 4.2 (range = 2). Anxiety Management Training was reported to be often used by [illegible] mean of 3.7 (range = 1). The mean for question nine was 4.5 (range = 2), indicating study skills component was often to very often useful. The mean for question 11 was 4.7 (range = 1), suggesting the participants' felt very comfortable with the group-leader. The mean for question 13 was 4.2 (range = 2) suggests the treatment programme met the participants' expectations moderately so.

TABLE 12. Participants' responses to the test anxiety treatment programme evaluation.

	Participants*										
Questions	1	2	3	4	5	6	7	8	9	Mean	Range
1)Organization of sessions	4	5	4	5	5	5	4	5	5	4.6	1
6) Length of the sessions	2	2	3	2	2	2	2	2	2	2.1	1
7) Amount of homework	2	3	3	3	3	3	3	2	3	2.7	1
8a) Efficacy of relaxation	4	5	4	4	4	5	3	4	5	4.2	2
8b) Use of ATM in daily life	3	4	4	4	4	4	3	4	4	3.7	
9) Use of study skills in daily life	5	5	5	4	5	3	4	5	5	4.5	2
11) Comfort with group leader	5	4	5	4	5	5	5	5	5	4.7	1
13) Programme meeting expectations	4	5	4	4	5	4	3	4	5	4.2	2

* The treatment programme evaluation was anonymous, so participant numbers in this table were randomly assigned.

The participants' responses to the open ended questions on the test anxiety treatment programme evaluation are presented in Table 13.

TABLE 13. Participants' responses to the open ended questions on the test anxiety treatment programme evaluation

Questions	Frequency of Positive comments	Frequency of Negative comments	Recommendations for the future	No comment or neutral comment
2) Recommendations for improvement of relaxation sessions	0	0	6 E.g. Ensure no distractions from outside. E.g. Provide a more comfortable place for relaxation	3 E.g., No change
3) Recommendations for improvement of study-skills sessions	1 E.g. I thought they were good	0	3 E.g. Sho ways of studying, i.e. mindmaps	
4) Most positive aspects of the sessions	9 E.g. Achieving relaxation and learning new study technique	0	0	0
5) Most negative aspects of the sessions	0	4 E.g. Having to think about awful test all over again.	0	5
10) Any other comments on the relaxation and study-skills components	4 E.g. Using relaxation skills whenever I am anxious.	0	0	5
12b) Any comments on the sessions being in a group	3 E.g. Easier to think of ideas E.g., Motivate me to try techniques.	0	0	6
14) Any other comments you wish to make	4 E.g. Good to practice the skills in the test anxiety test	0	0	5

Discussion

The discussion section firstly examines the results of the group pre-to post-treatment means on the *TAI, SSHA, STAI* and the *ATSS.* The second section examines the efficacy of the treatment programme at the individual level.

4.1 Group results

As predicted, the results on the *TAI* measure (Spielberger, 1980) demonstrated a significant reduction from pre- to post-treatment on both the sub-scales. Furthermore, the group post-treatment means on both the worry and emotionality components of test anxiety fall within one SD of the normative group means when compared to normative data (Spielberger, 1980). The results on the *SSHA* measure (Brown and Holtzman, 1967) indicated a significant increase in study habits and study attitudes from pre-to-post treatment, and fell within one SD of normative data (Brown and Holtzman, 1967). Both state and trait anxiety reduced significantly from pre-to-post treatment on the *STAI* measure (Spielberger, 1983). The groups post-treatment mean on state and trait anxiety fell within one SD of New Zealand normative data (Knight et al, 1983), for this measure. The mean frequency of dysfunctional beliefs, perceived poor coping skills and negative statements reduced significantly from pre-post treatment on the *ATSS.* The codes of functional beliefs and perceived good coping skills increased significantly in frequency from pre-to-post treatment as predicted. However, the hypothesis that the frequency of positive statements reported would increase post-treatment was not supported.

The reduction of both the worry and emotionality components of test anxiety post-treatment lends support to previous research which has suggested that anxiety-management training can reduce both worry and emotionality components effectively (Algaze, 1980 in Spielberger & Vagg, 1995; Hembree, 1988). The results of my study appear consistent with the findings that any treatment which is effective in reducing test anxiety will have corresponding effects on both worry and emotionality (Hembree, 1998). As expected, the finding that study habits and attitudes increased

significantly from pre-to-post treatment when study-skills training is combined with other behavioral treatments supported previous literature (Lent & Russell, 1978; Hembree, 1988; Spielberger & Vagg, 1995; Zeidner, 1998). Since the worry component of test anxiety has been found to correlate highly with trait anxiety, and the emotionality component with state anxiety (Spielberger & Sarason, 1978), it was expected that if worry and emotionality reduced post-treatment, state and trait anxiety would as well. Hembree (1988) reported that cognitive-behavioural treatments by themselves did not result in significant reductions in trait anxiety, but behavioural and/or study-skills training combined with systematic desensitization reduced trait anxiety significantly. The current results indicate that anxiety management training combined with study-skills training is efficacious in reducing
surprising that the more emotion-focussed treatment packages are effective in reducing trait anxiety, when trait anxiety is correlated highly with worry. One would have expected the cognitive component of treatment programmes to yield the more significant results. A possible explanation for this may be that worry (and therefore trait anxiety) is exacerbated by emotionality, so treatment programmes that are more behaviourally orientated and help students control their emotional responses, alleviate worry and trait anxiety at the same time. As predicted, in the current research state anxiety reduced significantly post-treatment, supporting Hembree's (1988) finding that cognitive behavioural programmes are efficacious in decreasing state anxiety.

The results from the ATSS support the construct validity of the ATSS paradigm, as a measure for assessing thought content for the test - anxious population. Firstly, the participants' responses to the scenarios reflect an acceptance of the experimental situation. Secondly, meaningful content analytic categories of the participants' responses were able to be constructed, and reliably coded. Thirdly, the resulting thought categories, when quantified, allow for any relationships and patterns between the codes to be discussed.

The hypothesis that the aggregated negative codes on the ATSS would reduce significantly in frequency from pre-to-post treatment was supported. As predicted, the aggregated positive codes increased significantly post-treatment. However, although good coping skills and functional beliefs increased significantly, the coded positive statements did not. This suggests that negative and positive thoughts are independent

constructs and the reduction of one code does not automatically result in an increase in the other. It could also be a function of the scenario scenes themselves, where the scenes did not stimulate the opportunity for the participants' to respond with positive statements. The information-processing model proposes that problems in retrieval for test anxious students are the result of the interference from maladaptive thoughts (Naveh-Benjamin et al, 1987). Thus, the finding that the frequency of negative thoughts and dysfunctional beliefs reduced post-treatment on the ATSS, and that worry reduced on the *TAI* suggests that the treatment programme was successful in eliminating the interfering cognitions claimed to be associated with retrieval deficits.

The greatest magnitude of change from pre-to-post treatmen
increase in the frequency of perceived good coping skills and decease of percei
poor coping skills. This was not surprising considering the focus of the treatment programme was teaching both anxiety management skills and study and test-taking skills. Even if the participants' had not fully developed the new skills that had been taught, it appears that their perception of coping resources had changed significantly in the therapeutic direction from pre-to-post treatment. Further, the test anxiety components of worry and emotionality have been associated with the detrimental coping behaviours of avoidance behaviour and emotion-focussed coping respectively (Blankstein et al, 1992). The current study aimed at providing the participants' with good coping (problem--focussed) strategies for all aspects leading up to and in the evaluative situation. Therefore, the increase of perceived good coping skills on the ATSS post-treatment, reflects the decrease of worry and emotionality on the *TAI* measure post-treatment (Spielberger, 1980). It also provides further support for the transactional perspective of test anxiety (Zeidner, 1998) which proposes that an individual's appraisal of coping strategies are important components of elevated test anxiety. The results in the current study on the ATSS indicate that perceived good coping skills are associated with a reduction in test anxiety.

The results of the current study support the notion that the use of a two-stage treatment programme is desirable when the aim of a programme is a combination of alleviating test anxiety and increasing study-skills. In contrast to Gonzalez's research (1986, in Spielberger & Vagg, 1995) where no significant reductions in test anxiety or increases in study habits or attitudes were found, the current study yielded significant

results on both of these measures. Spielberger and Vagg (1995) proposed that the ineffectiveness of Gonzalez's treatment programme be due to the participants being overwhelmed with information. The structure of Gonzalez's programme integrated both study skills and desensitization in the same sessions, and furthermore did not allow time for discussions and practice of newly acquired study skills. The current research structured the treatment programme in a manner that would alleviate some of these problems. First, the anxiety management component of the programme was presented to the participants in the first six sessions. These sessions focussed solely on anxiety management training, and thus allowed time for discussions at the beginning of each session about homework and any concerns the participants' may have had. New skills were then taught and practiced in each session, w
always held at the end. The implementation of discussions in a treatment progr
may be a key element in the success of reducing test anxiety. The participants' in the current research were encouraged to report their experiences of practicing the various relaxation techniques (required for homework) in both examination settings and in their everyday life. The discussions seemed to motivate the participants' to try out their newly acquired skills upon hearing the experiences of other members of the group. Thus, Gonazalez's (1986 in Spielberger & Vagg, 1995) exclusion of discussion time may have hindered the participants' willingness to practice and grasp the desensitization techniques that were taught, resulting in no significant reduction in test anxiety.

The current research did not focus on study-skill and test-taking training until after the completion of the anxiety-management component. The reasoning for this division was to allow the participants' to learn and practice their anxiety reducing skills, before introducing new study skills as well. Further, there was a week between the ending of the anxiety-management sessions and the beginning of the study-skills sessions where the participants did not receive any form of treatment. This structural difference to Gonzalez's (1986 in Spielberger & Vagg, 1995) programme design seems to have avoided the problems reported with overloading the participants' with information. The study-skills sessions in the current study were an hour long, compared with Gonzalez's (1986 in Spielberger & Vagg, 1995) programme of 15 minutes every session. The sessions focused solely on study-skills training which allowed for intensive discussions about homework, the practice of new study and test-taking

skills, and follow-up discussions about their effectiveness. These seem important elements for a study-skills component to yield significant results. In a review of the literature, Hembree (1988) found that group discussion, modeling and the practice of techniques must be incorporated into a treatment package aimed to develop effective study habits. Further, Groveman (1975 in Spielberger & Vagg, 1995) concluded that approaches for improving study behaviour must "get them (participants) to keep using the techniques they learned in therapy" (p 126). The current study encouraged participants to practice their study-skills in a number of ways. First, each session involved a practical component where skills were developed. Second, homework assignments were set encouraging the participants to organise their study time efficiently, set goals, and monitor how and when they studie
was required to 'report back' to the group at the beginning of each session abou study progress. This may have improved the participants' motivation to reach their set study goals. Fourth, in the final session of the treatment programme, each participant completed a mock test. To ensure the participants' understood the material taught in the programme, the content of the mock test was based on the study-skills component. The session before the mock-test, the participants discussed how they would incorporate their knowledge and skills from the anxiety-management training into the testing situation, how they would study for the impending test, and effective test-taking behaviour. Thus, the use of a mock test allowed the two stages of the test anxiety treatment programme to be amalgamated in a practical way.

The groups mean results from pre-to post-treatment support the assumption of the information-processing model that anxiety management training combined with study skills is efficacious for students with high-test anxiety and poor study-skills (Noveh-Benjamin et al, 1987; Everson et al, 1989). The information-processing model explains the poor performance of this type of test anxious student on organising, encoding and retrieval deficits. The current study employed the anxiety management training in order to reduce test anxiety and thus eliminate the problems in retrieval of previously learned information. The study -skills component attacked the participants' organising and encoding deficits by the teaching and practice of new study and test skills. The information-processing model claims those students' with high-test anxiety and poor study skills perform inadequately in both evaluative and non-evaluative situations (Noveh-Benjamin et al, 1987). The current study utilized a mock test at the

end of the treatment programme involving both multiple-choice and short answer questions, to further test this assumption. It was presumed that the participants' would perform poorly in the mock test if the treatment programme had not been effective, even though the results would not have any influence on actual course grades. Out of the nine participants, the lowest score on the mock test was 80 percent. This would indicate that the treatment programme had taught the participants sufficient skills to organise and encode the material efficiently and reduced the interference associated with retrieval deficits of previously learned information.

The good performance of the participants' on the mock test could be explained by aspects of the transactional perspective of test anxiety (Zeidr
performance may be a function of the nature of the questions. The complexity c
has been indicated to be anxiety provoking, with difficult tasks lending to heightened state anxiety (Hembree, 1988). Further, complexity is also related to the amount of prior experience with the material the students have had (Zeidner, 1998). In the current study, the content of the mock test was based on the study-skill sessions, so the participants had ample opportunity to be familiar with the content. Thus, the questions set in the mock test may have not been complex enough to result in increased state anxiety and interfering cognitions. Accordingly, the transactional prospective of test anxiety hypothesizes that test atmosphere and examiner characteristics can have either increasing or reducing effects on test anxiety (Hembree, 1988; Zeidner, 1998). In the current study, the mock test was presented to the students in a different room from the treatment programme sessions in an attempt to induce an environment that was less friendly and familiar to the participants. However, the test environment may not have been perceived by the participants as ego threatening. Therefore the participants may have not experienced test anxiety, in this situation, to a level that leads to a detrimental performance on an examination script. In future research, assessment of how test anxiety participants were in any mock test, would be useful.

Furthermore, research suggests that examiner reassurance and social support can counteract the interfering and maladaptive thoughts present in highly-test anxious students (Sarason, 1981). In the current study, the participants were very familiar with the examiner, as the therapist took the role as the examiner in the last session. This

could have facilitated the participants' proficient level of performance on the mock test. This transactional perspective explanation (Zeidner, 1998) for the participants success on the mock test could account for their ability to retrieve the previously learned information in the test. However, it does not explain the ability of the participants to learn and encode the correct material in the first place. This suggests that in the current research, the study-skills component of the treatment programme increased the participants' ability to encode and organise the relevant material in preparation for testing situations, providing support for the assumptions of the information-processing model (Noveh-Benjamin, et al, 1987).

The groups mean results on all measures suggest that the use
training combined with study skills training is effective in reducing test anxiety improving study skills. However, the results may have been due to non-specific treatment factors. Even though the baseline measures were stable, it is possible that the external validity of the research was threatened by therapist attention, and heightened expectancy from participant's knowledge of being involved in a treatment programme. The participants' comments from the Treatment Programme Evaluation form indicated that all participants' felt moderately comfortable to highly comfortable with the therapist, the sessions were perceived as well organized to highly organized, and the programme met their initial expectations from moderately so to highly so. Thus, the results found in the current research may have been due to mere exposure to a highly structured programme combined with attention from the therapist whom made the participants' feel comfortable. Indeed research suggests that exposure to a therapeutic procedure, even when it is of no value, may result in symptom reduction (Zeidner, 1998).

4.2 Individual results

In line with the information-processing model of test anxiety (Noveh-Benjamin et al, 1987), a treatment programme that incorporates both skill-training and behavioural components should reduce test anxiety and improve study habits for all students with high-test anxiety and poor study habits. Thus, one of the aims of the current research was to examine the results of treatment efficacy at an individual level. The group

mean results indicate that all participants' scores on the *TAI, SSHA* and *STAI* fell within one SD of the normative data. Was this true for each participant?

Of the nine participants, the post-treatment results of participant two, three, and nine fall within one SD of the normative data on all measures. This indicates that the groups mean results are misleading, as only one third of the participants yielded post-treatment scores that consistently agree with the group results. However, although some of the participants' post-treatment scores were not within one SD of the normative data, their scores did change in the therapeutic direction. Participant one's worry score on the *TAI*, study habits and study attitudes on the *SSHA*, and trait anxiety on the *STAI* all changed in the therapeutic direction, whilst tl
state anxiety scores reduced to within the mean of the normative data. Participa
four's post-treatment scores all fell within one SD of the normative data with the exception of state anxiety, which reduced in the therapeutic direction. Participant five's worry and trait anxiety scores reduced in the therapeutic direction, while all other scores fell within one SD of the normative data. Participant eight's post-treatment scores all fell within one SD of the normative data, with the exception of emotionality on the *TAI*, which reduced in the therapeutic direction. Thus, four of the nine participants' demonstrated clear changes in the therapeutic direction on some measures and a change to within the normative data on other measures.

Not all of the participants showed changes in the therapeutic direction on every measure. Participant three's post treatment scores on the study attitudes subscale of the *SSHA*, and the emotionality scale of the *TAI* changed in the non-therapeutic direction. However, their worry, study habits, and trait anxiety scores changed to within one SD of the normative data, whilst their state anxiety reduced in the therapeutic direction. Participant six's results indicate a change in the therapeutic direction for emotionality, but their worry score actually increased post-treatment. All other measures for participant six fell within one SD of the normative data post-treatment. There does not appear to be a pattern in terms of which measure yielded results that fell within one SD of the normative data, a therapeutic effect or a non-therapeutic effect. One would have expected a relationship between worry and trait anxiety, where if one reduced, the other would have as well. Similarly, a relationship between emotionality and state anxiety was expected, as these measures have been

found to be highly correlated (Spielberger & Sarason, 1978). Further, it was assumed that if study habits improved significantly, then study attitudes would reflect this improvement. However, the individual results demonstrate a lot of variance on the measures. Although the expected relationship between the measures mentioned above was found in some participants, this was not consistently replicated for all participants.

The finding that eight of the nine participants yielded changes on all measures to within one SD of the normative data, or in the therapeutic direction is promising. It has been suggested that individuals may change at different rates of time when exposed to new therapeutic techniques (Sidman, 1960, in Bl
the results at an individual level has allowed the risk of inferential errors to be reduced. The groups mean results on all measures indicate all participants demonstrated significant changes immediately after treatment. However, it is clear that four of the participants' results indicate a change in the therapeutic direction, which may improve to within one SD of the normative data as a function of time. Since all of the participants were exposed to the same treatment procedure in the same setting, the differences in the results can only be explained at the individual level. The success of the treatment programme for three of the participants indicates that, for some students with high test- anxiety and poor study skills, this type of programme is efficacious. The failure of the between-person replication to yield successful results for all of the participants suggests that individual differences were a determining factor in the efficacy of the treatment programme. Further research would benefit from exploring the source of these differences, such as motivation, changes in life circumstances, intelligence, prior history of severe test anxiety, developmental processes and personality. The current study did not employ pre-treatment measures to examine and compare these attributes of the participants, which may have resulted in the variation of post-treatment outcomes.

The individual results on the ATSS also demonstrated a variety of responses. Participant one and participant six showed marked changes in the therapeutic direction from pre-to-post treatment on all codes. This does not however appear to be related to their post-treatment scores on the pen and paper measures. Participant six's worry score changed in the non-therapeutic direction on the *TAI*, even though the

codes on the ATTS appear to reflect a change in the therapeutic direction. One would have expected a reduction on the worry score of the TAI when thought content on the ATSS appears adaptive, but there seems to be no relationship between the two constructs. However, although participant one did not change to within one SD of the normative data on the pen and paper measures, they did change in the therapeutic direction, which suggests that their ATTS responses do indicate a relationship with the other measures employed.

The codes that yielded the least change in the therapeutic direction are functional beliefs and positive statements. Apart from one and six, the remainder of the participants showed little change, no change or a decrease in these codes post-treatment, regardless of their responses to the other codes on
on the pen and paper measures. Moreover, most of the participants did show a s or marked change on the remainder of the codes on the ATSS. The failure of therapeutic change to occur on the functional beliefs and positive statement codes could be a function of the treatment programme design. The content of the programme successfully reduced dysfunctional beliefs and negative thoughts, but did not employ a component to replace these thoughts with positive, functional statements. Future research would benefit from the inclusion of a cognitive technique that aims to both reduce maladaptive thought and equip participants with positive statements.

4.3 Conclusions

The current study examined the efficacy of a cognitive behavioural treatment programme for students with high-test anxiety and poor study skills. The groups mean results appear to support the information-processing model's claim that this type of programme is successful for the people examined. The group results also confirm the suggestions of Spielberger and Vagg (1984; 1995), that a two-stage treatment programme is desirable for students with high-test anxiety and poor study skills, where contrary to Gonzalez's (1986 in Spielberger & Vagg, 1995) research, all post-treatment measures reduced significantly. The current study employed a multiple-baseline- across- groups design, to determine the efficacy of the treatment programme at an individual level. The results indicate that the treatment programme was

successful for seven of the nine participants, where they showed either a change to within one SD of the normative data or a change in the therapeutic direction on all measures. The variability in the participants' responses to both the pen and paper measures and the ATSS is readily apparent. Thus, to claim that this type of treatment programme is efficacious for all students who have high-test anxiety and poor study skills appears presumptuous. Participants in any treatment programme need to be recognized for their individual differences, and this research clearly demonstrates that the same treatment programme for students in the same test-anxious population will yield different responses. Due to this variance, future research should investigate the variety of individual differences within the high-test anxiety and poor-study skills population, to further enhance our capacity to tailor treatmen
capacity to respond.

4.4 Difficulties encountered throughout the research

A number of delays were encountered in the initial organisation of the research. This was partly due to difficulties in accessing the measures and manuals. The TAI and SSHA were not available in New Zealand, and it took considerable time to get authorization for the use of them. Further delays were encountered when the wrong measure was sent for the TAI, and the SSHA arrived without the scoring and norm manual.

Comments from some of the participants on the Test Anxiety Treatment Programme Evaluation indicated that they were at times distracted by noise outside of the treatment room. At the time this research was conducted, the University of Canterbury Psychology Department was experiencing a severe shortage of research space. Therefore, the room allocated for this research was less than ideal in that it was small and noise could sometimes be heard from adjoining offices.

Throughout the treatment programme six participants withdrew from the study for a variety of reasons, including time constraints and health problems. Although the researcher had a number of students who had inquired about participating in the research before the treatment programme began, it was not possible to simply replace

the withdrawn participants with other people. Unfortunately the first withdrawal from the programme occurred after group 3 had completed their first session, so any replacement participants would have had to be included in a group that was partway through the treatment programme.

4.5 Limitations of the current research

The most concerning limitation of the current study is that the results are limited to short-term effects only, since no follow-up measures were carried out. Though the treatment was effective on measures administered immediately after treatment, no statements can be made on long-term effectiveness.

A second limitation of the present study is the self-selected sample. Although the participants invited into the treatment programme had met selection criteria based on their severity of test anxiety and poor study skills, it is difficult to determine whether these students are representative of the target population. It is possible that the students who volunteered for the treatment programme possess characteristics that are non-representative of students who did not volunteer for the programme, but would have met the selection criteria. This is a possible threat to the external validity of the present research.

A third limitation of the present research is the cognitive component of the treatment programme. The term 'cognitive' in test anxiety research is ambiguous and is used in a variety of ways (Spielberger & Vagg, 1984). The meaning of 'cognitive' in relation to this research refers to the instructions that were given to help participants use and benefit from the training procedures in a way that would facilitate their test performance. In stage-one of the treatment programme, cognitive instructions provided information on when and how to use the relaxation techniques during examinations and other areas of the participants' lives. In stage-two of the treatment programme cognitive instructions focussed on coding, rehearsal and retrieval processes, and test-taking skills. In Hembree's (1988) review on the effects of various types of treatment programmes, anxiety management training was classified as a cognitive-behavioural therapy. Conversely, according to Zeidner (1998) anxiety

management training should be labeled an emotion-focussed therapy. However, Spielberger and Vagg (1984), refer to two emotion-focused treatments as including "strong cognitive elements (e.g., instructions on when and how to use relaxation or biofeedback to reduce emotionality during examinations)" (p 208). The present research certainly meets the 'cognitive' criteria in these terms, but a valuable addition to the treatment programme would have been the inclusion of a session specifically addressing irrational thoughts and cognitions. This could have been in the form of rational restructuring whereby negative test-related self-statements are replaced by positive self-statements (Davision & Neale, 1994). This would have enhanced the cognitive component of the treatment programme, providing a more multifaceted intervention.

A fourth limitation of the present research is the exclusion of a measure for academic success. Frequently researchers use grade point averages both pre- and post-treatment to determine whether the intervention has had any significant effect on the participants' academic standing. Smith, Arnkoff and Wright, (1990) claim that semester grade point averages are a limited prediction of academic success because they are a "global heterogeneous index" (p 320). Test performance is also considered to be a poor prediction of academic ability due to the "idiosyncratic or momentary factors" (Smith et al, 1990) that affect results. Smith et al (1990) concluded from their research that course grades are a better measure to evaluate academic performance when compared to the predictors mentioned above. The present study did not employ course grades as a measure due to the variation of courses the participants were enrolled in. This could mean that the results that were found in the present study have not generalized to improving academic performance in the participant's actual tertiary studies.

4.6 Future research

Future research should recognise the limitations of the current study. Follow-up measures should be included to examine the long-term effectiveness of this type of programme. A specific cognitive component, such as rational restructuring (Davison & Neale, 1994) would be a valuable addition of the treatment programme, and would

validate the assumptions made in this research that positive thoughts on the ATSS did not show a marked change post-treatment due to the exclusion of a direct cognitive component. Further, the inclusion of a measure of academic success (course grades) would enable the research to demonstrate whether the treatment programme improved academic performance in real life circumstances.

The use of single-case design should be employed when determining the efficacy of a test-anxiety treatment programme. The current research demonstrated that group data, which may appear effective, could be misleading due to variance in response to treatment. Future research should further examine individual differences of the highly test anxious and poor study skills population, to account for t' [illegible] to post-treatment. An inclusion of a measure to assess the eff[illegible] to generalise into other areas of the participants' lives would also be valuable.

Further research examining the study skills of test anxious students in New Zealand, would do well to employ a measure that is specific to the needs of the New Zealand population. The *SSHA* is an American based measure and as such, some of the items and the language used, do not relate well to university life in New Zealand. This may have hindered the accurate measure of the participants' study skills in the current research.

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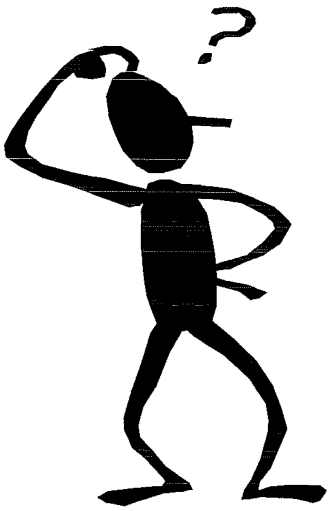
Appendix A

Test Anxiety Treatment Programme



Do you experience anxiety during exams?
Do you believe this anxiety is impairing your academic grades?

As part of my Masters thesis, I am offering you the opportunity to participate in a FREE treatment programme for exam anxiety. The programme involves learning relaxation skills, study skills, and test-taking skills.

If this is something you are interested in or would like to know more about, then please contact Jo Capstick:

University phone number: 3642987 ext 7193
Email: jmc170@student.canterbury.ac.nz
Office: room 131 psychology department

This project is under the supervision of Neville Blampied and has been approved by the Human Ethics committee.

Appendix B

Information Sheet

You are invited to participate in the research project "The efficacy of a cognitive-behavioural and study skills programme for students with test anxiety". My name is Joanna Capstick and I am studying at the University of Canterbury towards a Masters of Arts degree in psychology. My area of interest is in the effectiveness of treatment for exam/test anxiety. The aim of this project is to explore the efficacy of a two-stage treatment programme for exam anxiety, where stage one focuses on reducing anxiety experienced during exams, and stage two focuses on implementing effective study skills.

The programme that I am asking for your participation in will be for the duration of six weeks, where week four will not require you to receive any kind of treatment. The programme will require you to attend two one-hour sessions per week, making a total of ten sessions.

During the initial assessment phase you will be asked to complete three questionnaires about your anxiety levels during examinations, how you generally feel, and your study habits and attitudes. You will also be asked to listen to an audiotape and respond aloud to each segment on your thoughts of the situation. During the first session, which will be for the duration of two hours, you will receive a detailed description of the programme and taught the procedure of relaxation. During the following sessions (one hour) we will work through the programme covering topics such as relaxation without tensing, awareness of early signs of anxiety, self-initiated relaxation, study methods, examination techniques and time-management. The final session will involve you completing the same three questionnaires and audiotape that you completed during the initial assessment phase.

Throughout the programme you will be required to complete weekly homework exercises. This will involve the completion of weekly diary's on your progress of relaxation and study habits. As a follow up to this investigation, you will be asked to come in and complete the same questionnaires that were completed during the

assessment phase about your anxiety levels during examinations, how you generally feel, and your study habits and attitudes.

The results of the project may be published, but you may be assured of complete confidentiality of data gathered in this investigation: the identity of participants will not be made public without their consent. To ensure anonymity and confidentiality, all participants will be allocated a research number where only the researcher and supervisor know the system for allocation.

Appendix C

Participant Consent Form

Project – The efficacy of a cognitive-behavioural programme for students with test-anxiety.

1) I have read and understood the description of the project in the information sheet, and have had the opportunity to ask any questions regarding the project. On this basis, I agree to participate in the project.

2) I consent to Joanna writing up her findings and publishing them as her Masters' thesis and in other publications, with the understanding t
preserved.

3) I understand that I am free to withdraw from the project at any point, including withdrawal of any information I have provided.

Signed

.....
Participant

.....
Researcher

Appendix D

Test Anxiety Treatment Programme Evaluation

Thank you for participating in the treatment programme for test anxiety. It would be helpful for my research if you could provide me with some feedback on the programme itself. This evaluation sheet is anonymous, so please be as honest as you can.

1) How organized did you find the sessions? (circle the appropriate number)

Poorly Organized	**Somewhat Organized**	**Adequately Organized**	**Well Organized**	**Highly Organized**
1	2	3	4	

2) What do you recommend should be done to improve the relaxation sessions?

3) What do you recommend should be done to improve the study skill sessions?

4) For you, what were the most positive aspects of the sessions?

5) For you, what were the most negative aspects of the sessions?

6) How did you find the length of the sessions? (circle appropriate number)

Too Short	About Right	Too Long
1	2	3

7) How did you find the amount of homework? (circle appropriate number)

Too Much	Slightly Too much	Just Right	Slightly Not Enough	Not Enough
1	2	3	4	5

8A) A lot of the training was based on Anxiety Management have you found the skill of relaxation? (Circle appropriate number)

Not at all Useful	A Little Useful	Somewhat Useful	Often Useful	Very Often Useful
1	2	3	4	5

8B) Have you used the skill of relaxation in your daily life and/or for exams? (Circle the appropriate number)

Not at all	Seldom	Occasionally	Often	All the time
1	2	3	4	5

9) How useful was the study skill component of the programme? (Circle the appropriate number)

Not at all Useful	A Little Useful	Somewhat Useful	Often Useful	Very Often Useful
1	2	3	4	5

10) Any other comments on the relaxation and or study skills (i.e expand on where or when you may have used them or possible reasons they were not effective)

11) How comfortable did you feel with the group-leader? (Circle the appropriate number)

Very Uncomfortable	Somewhat Uncomfortable	No Feelings Either Way	Moderately Comfortable	Very Comfortable
1	2	3	4	5

12A) The test anxiety programme you have completed was run in a group format as opposed to one-on-one sessions. If you had the choice, what would your preference be?

Group Format	Don't care	Individual sessions	Mixture of group And Individual
1	2	3	4

12B) Any other comments on the sessions being in a group

13) Has the treatment programme met the expectations you had when it started? (Circle the appropriate number)

Not at all	A Little	More or Less	Moderately So	Very much So
1	2	3	4	5

14) Any other comments you wish to make?

Appendix E

Automatic Thoughts in Simulated Situations.

Instructions to participants

In this study I am interested in the kinds of thoughts people have when they are in certain situations. Often, when people are going about their daily affairs, they have a kind of internal monologue going through their heads, a constant stream of thoughts or feelings that reflect their reactions to something that is happening. What I would like you to do is play a part in a few situations that we have taped. Your part will involve listening to situations and tuning in to what is running through your mind, and then saying these thoughts out loud. The tapes are divided into segments. At the end of each segment there will be a tone, followed by a pause of thirty seconds, during which time we would like you to say out loud what is going through your mind. Say as much as you can till you hear another tone. Of course, there are no right or wrong answers, so please just say whatever comes to mind, without judging whether it seems appropriate or not. The more you can tell us the better. Try to imagine as clearly as you can that it is really you in the situation right now. Note that your task is not to speak back to the voice in the tape as though you were having a conversation. Rather, you should tune in to your own thoughts and say them out loud (Davison, Vogel, Coffman, 1997, pg 951).

ATSS Scenarios

1) It is the first day of the academic year and you walk into the lecture room and take a seat. The lecturer welcomes everybody to the class and introduces the topics and themes that will be taught throughout the year. The lecturer then hands out a course outline sheet, which has printed on it the assignments and tests that are required for the course. You glance down at the piece of paper and notice that the assessment for the course involves an essay, one mid year test and an end of year test.

2) You are sitting in the café at university surrounded by a group of friends who are all doing the same course as you. Your friend beside you starts discussing the

approaching test you have next week. Other friends at the table start to talk about how much study they have completed and what they think will be in the exam.

3) The night before a test for one of your courses you decide to go to the library to do some revision. You take a seat and pull out the text and notes from your bag. You start to flick through the textbook, and then casually glance up and look around you. You notice that there are other people in the library studying for the same test as you. They seem to be working hard as their heads are down and they are writing notes quickly.

4) It is the day of a test for one of your courses. You walk t
immediately see everyone else in your class chatting outside. You are holdi
your study notes in your hand but decide to place them in your bag. You take out a couple of pens and are left standing outside of the exam room waiting with your classmates. You look at your watch and there is 5 minutes before you are allowed into the room.

5) You walk into the test room and place your bag at the front of the room. All the test papers are face down on the allocated desks. You climb up a couple of steps and make your way to a seat. You fill in your name and the course prescription number of the paper, then sit and wait for the supervisors to announce the beginning of the exam. The instructors at the front begin to inform you that you all have 2 hours to complete the paper. The test paper is sitting in front of you unopened.

6) The supervisors of your exam have announced the test has officially begun. The sound of everyone turning the test paper over fills the room. You turn over the first page quickly and start glancing down at the questions.

7) During the test you like at the clock and realize that an hour has past. You look around at the other people in the room and notice that everyone seems to be writing really fast. You are aware that your mind is racing.

8) During the test you are attempting to answer a question that you recall studying the information for. You are really trying to concentrate and focus on the question because you know that you should get this question right. You kind of have that "tip of the tongue" feeling.

9) The supervisor at the front of the room announces that there is 10 minutes till the end of the exam. You quickly look at the question sheet and realize that you still have a few questions to complete.

10) The supervisor at the front of the room announces that the test is over. You all have to stop writing and put your pens down. You walk ‹
your bag, and then hand in the answer booklet to the supervisor as your wal
of the room. You immediately see some of your friends who have just completed the same test as you. You walk up to find they are talking about the answers to a question you also answered in the test.

11) You arrive home after the exam and relax on the couch. Your bag is sitting in front of you with your study notes in it from the morning. You reach over and take the study notes out and begin to browse through them. You find a section in the notes, which was part of a question you answered in the exam.

12) You are sitting in a lecture exactly a week after you have sat a test for that course. The lecturer is talking at the front of the room, and then announces five minutes before the lecture ends that the grades for the previous test will be available for students the following day. The grades will be posted on a board in the department beside your student identification number. You look around the lecture and notice that some people look excited whilst others look a bit nervous.

13) It is the day that you will find out how you did in a test you took. You hear from a friend that the results are indeed posted in the department. Your friend did rather well and is encouraging you to go and check your marks. You walk to the board that has the results of the listed., but stand back and wait a little while as there are a lot of people checking their marks. From the comments you are overheard,

people seem to have done well or really badly. Finally you have a clear view of the board and are searching for your own identification number.

Appendix F

Categories of Articulated Thoughts

1) **Dysfunctional Belief:** belief or assumption that is maladaptive and based on insufficient evidence. Could include:
   - **A)** Arbitrary inference - conclusion in absence of sufficient evidence or any evidence at all.
   - **B)** Selective Abstraction - Conclusion drawn on basis of but one of many elements in a situation i.e., one negative comment written by the marker on an "A" grade essay leaves the student feeling the essay was worthless.
   - **C)** Overgeneralization - Sweeping conclusion drawn
   - **D)** Magnification - exaggerations in evaluating performance. Uses words as "everybody" "everyone" "always".
   - **E)** Minimization - minimize achievements

2) **Functional Belief:** A belief or assumption that is based on reality.

3) **Poor coping and Examination skills**: Could include:
   - **A)** Maladaptive coping responses, for example, physiological responses such as heart- rate increasing, sweating or negative emotional responses such as feeling nervous, panic.
   - **B)** Poor study/examination techniques, for example, leaving study to the last minute, not studying enough.

4) **Good coping and examination skills:**
   - **A)** Adaptive coping responses, for example relaxation, deep breath
   - **B)** Good study/examination techniques, for example, keeping focused on the exam, starting the exam with the easy questions.

5) **Negative Statement:** A statement that is negative but not a dysfunctional belief, for example, I hate essays.

6) **Positive Statement:** A Statement that is positive but not a belief as such. For example, I'd be excited to be in a new course.

7) **Other:** A sentence that does not fit into any of the above categories.

Appendix G

Treatment Programme.

Week One – based on Suinn, (1990)

Session One - 2 hour session

A) Session Goals

1) Introduce the participants to the therapist and each other
2) Give description of the treatment programme
3) Give rationale of the treatment programme
4) Introduce the technique of tension – release relaxation
5) Emphasize the importance of keeping accurate records and of practicing regularly

B) Session Procedures

1) Initial introduction by therapist and group round of introductions

2) Explain aspects of anxiety – physiological, cognitive, behavioral responses

I will present you all with some information about anxiety, what it is and how it affects us.

Anxiety is an emotion that is experienced by every single individual. Anxiety is part of the experience of being human. Anxiety is not necessarily always bad, but in some individuals it can occur either excessively frequently and/or at extreme levels of intensity so that it is distressing and it can interfere with the individuals level of functioning. In cases such as these, help is frequently necessary in order to help people understand anxiety, reduce the frequency and/or level of anxiety, and learn how to deal better with stress as well as anxiety itself so that there is less likelihood of problems in the future.

When individuals with anxiety problems talk about anxiety, they usually mention a wide variety of physical feelings and symptoms as well as negative thoughts, and

sometimes changes in behavior. The individual may report feeling tense, nervous, noticing rapid pulse, having difficulty breathing, frequent or excessive sweating butterflies in the stomach etc. Clients also report feeling of impending doom, thoughts that something terrible is about to happen, and a great deal worrying and brooding about the present and particularly their future. Sometimes clients also report changes in their behavior associated with their anxiety. These behavioral changes may include disruption of performance, such as when anxiety interferes with one's ability to do a good job in work or to complete a necessary task, and sometimes may include avoiding certain places or situations. In fact, researchers have agreed that with most clients, anxiety seems to be an emotion that consists of a combination of 3 variables: physiological, cognitive, and behavioral. Some people may b
physical side of anxiety whereas other clients may be more aware of the cogniti
behavioral side of anxiety. Although, whether we are aware of our anxiety or not, anxiety can still have a negative impact on our lives. For example, people may engage in avoidance behavior to avoid being in anxiety provoking situations – although they are unconsciously aware of the reasons for their behaviour. This could be from not enrolling at tertiary education because you may have to sit exams, to avoiding places with heaps of people because you feel intimidated.

Firstly, I will discuss the physiological aspects of anxiety. Anxiety involves increased physiological arousal of the autonomic nervous system. The autonomic nervous system is that part of the nervous system that controls many of our bodily processes or bodily activities, particularly the functioning of the internal organs, such as the cardiovascular and gastrointestinal systems. When an individual experiences high levels of anxiety, some of the bodily processes are automatically increased. E.g., the individual's heart and breathing rate may become more rapid while digestion may be slowed down. Thus anxiety is not just something that is "all in the individuals head", but rather does involve some real physical changes. There is increased physiological arousal in at least some of the body's organs. Many of these physical changes can also occur during exercise, excitement, sexual arousal etc.
This arousal is associated with a variety of sensations, feelings or "symptoms" that are sometimes experienced by the individual as frightening or distressing. These sensations include familiar sensations of increased heart rate, dizziness, difficulty breathing, feeling faint and a wide variety of other symptoms. These sensations are

the result of the increased physiological arousal of the emotion of anxiety. They indeed can be quite distressing. However, they are sensations and they are not necessarily dangerous. Anxiety involves an exaggeration of normal bodily processes. Everybody probably experiences at least some of the physical sensations or symptoms of anxiety at least occasionally. Some people actually go out of their way to experience these sensations, e.g. by riding a roller coaster or watching horror movies. As stated before however, some individuals experience these sensations more frequently or at higher levels. However, again it is important to recognize that anxiety involves normal bodily reactions. The higher frequency or intensity of anxiety can be reduced by certain treatment procedures that will be part of this treatment programme. We will discuss these treatments later.

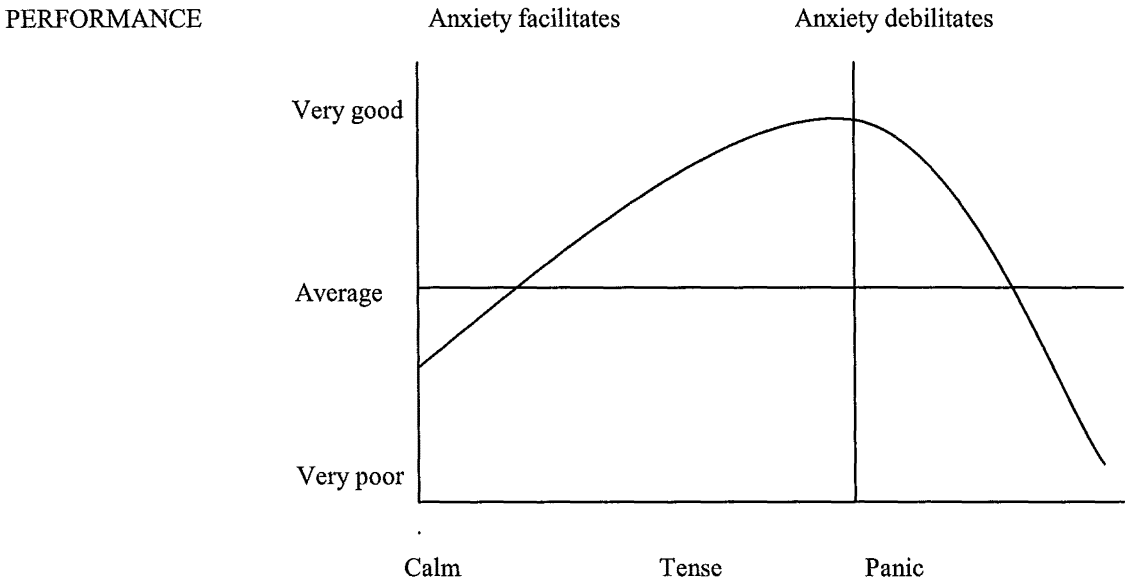
Anxiety can be useful. Consider the following:
A person is walking across a field, which seems to be empty. Suddenly out of some bush 300 metres away a bull emerges, sees the walker, bellows and then charges. The walker realizes the danger and starts running for the fence some distance away. ...
Automatically a series of changes occur in the body: OHP of bodily responses

And so the walker is able to run very quickly towards the fence, reaching there before the bull.

This "fight or flight" response is useful in the short-term, especially if the danger can be avoided by physical exertion. But it is on no use in the long-term and certainly of little use in most stressful situations in the civilized world – it does not help to run when a traffic cop pulls you over and it doesn't help to fight physically when you are threatened by the boss. However, because the "fight or flight' response" was useful when we were cavemen and women it is still part of our bodily makeup. . It is no wonder then that when we are threatened we can't get enough air, our hearts pound, we feel nauseous and our arms and legs tingle and shake for all these responses would be useful if we could fight or flee. The only part of "fight or flight" responses that is of use today when we are handling most stresses, is the increase in mental alertness that it provides. It is very important to understand how this can be helpful and to understand how it can be harmful.

Anxiety helps you perform any skilled activity. If you are totally relaxed when you take an exam, play a game of sport etc...you will not give it your best. To do anything really well you need to be alert, or "psyched-up". So anxiety in moderation is a drive that can work well to make you more efficient. This is very important for people who have problems with anxiety as they often become afraid of this healthy anxiety that aids problem solving - they fear it might become uncontrollable and hence avoid using anxiety in this healthy way.

When people do get highly anxious their skill at problem solving declines rapidly. When you get close to a panic, the anxiety interferes with the ability to think clearly – this is the sort of anxiety that leads to mistakes. In fact the m
more important it is to manage anxiety carefully; ideally one should remain aler
tense and in control for maximum efficiency. The relationship between anxiety and performance is shown in the diagram.



The second major aspect of anxiety is what we have already described as the cognitive component, or the component involving our thoughts, beliefs, expectations and so on. All people are influenced greatly by the type of things that we think about and the evaluations, interpretations, or appraisals of experiences. We frequently feel

that our moods are determined by things that happen to us, our past experiences, situations we currently experience etc.
In a similar fashion, people label their experiences almost constantly. Unfortunately, at times, individuals' interpretations of situations and experiences do not seem to be that accurate. Our interpretations can get in the way and can cause a considerable amount of problems. Our interpretations of situations can sometimes be identified or recognized by the type of things we say to ourselves in various situations. We are now talking about the thoughts that an individual has. Just as cognition, interpretations, or self-statements can bring on negative mood and negative feelings, they can be turned around or modified to improve our ability to cope with stress and to deal more productively with various experiences and situations. Parts o
on during the treatment programme consist of procedures for learning different
of dealing cognitively with stress and anxiety.

The third major component of anxiety is the behavioural component. Anxiety may disrupt a person's performance, particularly for behaviours that require concentration or skill. Anxiety can influence behaviour in another way. Some people learn to avoid situations or places in which they have experienced anxiety or where they think they may experience anxiety. We call this avoidance behaviour. On the other hand, some people may leave or run away from where they are when they start to experience anxiety. We call this escape behaviour. A common theme among people with anxiety is that they adopt a "spectator role" in situations where they experience anxiety. That is, they become so occupied with their level of anxiety or negative thoughts that they divert their attention away from the task at hand, and this in turn results in inefficiency. E.g. a person may be so preoccupied with feeling of anxiety in a test, that they are unable to answer any of the questions.

The treatment strategies you will be learning are designed to reduce anxiety and to help you cope better with anxiety that does occur. These strategies, therefore, are likely to decrease the extent to which anxiety interferes with or disrupts your behaviour and performance.

To briefly review, there are 3 major components of anxiety.
- First, the physiological arousal that is associated with different physical sensations and feelings.
- Second, the cognitive component, which involves our thoughts or self-statement and our beliefs, and expectations, as well as our visual imagery.
- Third, overt behaviour, including avoidance and escape responses and quality of performance of skills and tasks.

3) What is test anxiety?

Test anxiety has been conceptualized as a situation-specific ε
anxiety you experience is confined to situations that involve examinations. The anxiety does not usually generalize to other parts of your life. Anxiety disorders are quite common, occurring in about 10% of the adult population. While anxiety is a central feature of all these disorders, each of the disorders has a central feature that distinguishes it from the rest. In simple phobias, the person is very anxious, but only when confronted with a particular situation. For example, acrophobia is a fear of heights; the acrophobic becomes very anxious when in a high place but otherwise is not usually bothered by the anxiety.
In the case of exam anxiety, you are troubled by anxiety when in an evaluative situation.

4) Group sharing of responses to test anxiety

Now would be a good time for us to share with each other our own experiences of anxiety that we have felt before, during or after test experiences. Don't worry if you can't remember exactly what it feels like, but try to recall what you feel, think or do as best you can. It is ok to pass if you can't remember, hearing other people's experiences might jog your memory, so we can come back to you later.

5) Description of treatment programme and rationale

The treatment programme that we are going to use in the first 6 sessions is called Anxiety Management training. Basically this will involve teaching you relaxation

techniques to help you control your anxiety. During the fourth week you will have a break from our sessions, and then resume again in the fifth week focusing on study methods.

Rationale of Anxiety Management training.

- AMT will involve training you in recognizing the early signs of anxiety so that you can control the anxiety before it becomes a problem. The method of control will be the use of relaxation. We will be using a very straightforward exercise to teach you relaxation. Being able to control your anxiety will require practice. To give you practice we will be having you visualize scenes of situations
anxious, in order to practice eliminating this anxiety through relaxing. That's re there is to it. AMT is not very difficult to learn but we have good evidence that it is very successful.
- One of the advantages of AMT is that it provides you with a skill that will work for you in a variety of different situations. Even though we will be focussing on anxiety around exams, the skill in relaxing will be useful in those situations when you hear another student talking about examinations, when you just see the word "test" somewhere, or even when you 're hearing a new lecturer talk about the year's testing schedule.

6) Break for 10 mins

7) Relaxation scene development

The next thing we are going to do is called relaxation scene development. This involves the identification of a real-life situation that is associated with being relaxed. This scene will be used at various times as a complement to the relaxation itself, to cue further relaxation. The relaxation scene has to be associated with relaxation or calmness. Furthermore, the relaxation scene should not be confused with tiredness or fatigue, such as might be thought of for athletes e.g., after running hard and collapsing comfortably in a chair or that pleasant tired feeling that comes from working too hard. Also, your relaxation scene should not have been cause artificially. By this mean like "after a few beers I feel really relaxed".

So, the relaxation scene for you must be a real-life one where you can identify the date it occurred and the events that lead to this relaxing state – it is not a fantasy or an imagined relaxation state. The scene should have scene setting elements as well as feeling orientated elements. Scene setting elements are descriptive of the environment and circumstance, such as "on the sand, alone with the breeze", while feeling scene elements capture the feeling tone, such as "I'm comfortably warm; I can feel my body completely relaxed; I have no care in the world, just peaceful".

Some ideas for your relaxation scene.

1) Being in a favorite place at home: this usually entails a fa
quiet time of the evening, without the presence of others, and while engaging in quiet activity such as reading a book or listening to music. The following illustration is an excellent example of this theme...

" It was late spring, 1988, and I had finished a light dinner and settled into my favorite chair...it's made of comfortable leather, big enough that I can pull my legs up, which I had done. I was leaning on the one big arm on the left hand-side, had one floor lamp on, so the rest of the room was dark. It was after the movie, 8pm. I had my soft Mozart record on, and I wasn't reading, just sitting there listening to the strings. It was nice just being alone, the peaceful feeling of isolation and quiet".

2) Being on the beach: This usually entails a vacation at a shore, such as a lake or ocean, with sensations from the sun and the breeze and the wave being prominent, and often people are suntanning. Although people may be around, there is typically no interaction. The following example illustrates this:

" I'm at Lake Tekapo, it was two years ago; I'm on a big red towel, my favorite beach towel...lying on my back, radio next to me, it's warm, not hot, just pleasantly warm...I had just come *out of the water...I could see the blue sky and white clouds making forms, lazily drifting...there is a soft breeze, I can hear birds and the water lapping the sand...mainly the warmth of the sun as it makes me so relaxed...no cares in the world."*

3) Being at a picnic in the part of the country, the hills, the mountains, a wooded park: This usually involves a quiet break in the picnic activities, as illustrated in the following:

My boyfriend and I had just been on this picnic in the meadow part of the state park...it was just going into Autumn, so the air was getting cool, but not uncomfortably so since I was dressed warmly...John had left to walk to the creek to see if there were any fish...and I was sitting with my back to a tree...I was just letting my eyes gaze at this broad expanse of green, and up on the hills at a distance the beginning of some yellow and orange mixed with the green forest...it felt like one of those paintings you see with everything peaceful...occasionally some birds would be singing..."

Ok, to review, your relaxation scene has to be a real event that you associated with relaxation. It needs to be specific with both scene setting and feeling orientated elements.

I would like you to get into pairs and help each other write down a scene that you associate with relaxation. I will help you and look over them when you are ready.

8) Slow-Breathing Technique

This method of breathing should be done at the first signs of anxiety

You must learn to recognize when you are starting to become anxious and then immediately do the following:

1) Stop what you are doing and sit down or lean against something.
2) Hold your breath and count to 10 (don't take a deep breath)
3) When you get to 10, breathe out and say the word "relax" to yourself in a calm manner.
4) Breath in and out slowly in a six second cycle. Breathe in for 3 seconds and out for 3 seconds. Say the word "relax" to yourself every time you breathe out.
5) At the end of each minute (after 10 cycles) hold your breath again for 10 seconds and then continue breathing in the 10 second cycle.
6) Continue breathing in this way until all the symptoms of overbreathing have gone.

9) Relaxation training (25 mins)

In a moment, I will be giving you the instructions for the relaxation exercise. It is actually a method that has been adopted from physical education that has proven successful in teaching individuals how to relax their muscles. For us it is important because the muscle relaxation also leads to mental relaxation and calmness. The exercise is kind of an isometric one; by this I mean that you first tense up a muscle group then, you just release the tension. By doing this sequence, you use the tensing as a means of noticing just what muscle tensing feels like. Then when you relax the muscle, you are teaching yourself how relaxation feels. We have found that just going through each muscle group tensing them and relaxing leads t
relaxed state at the end of the exercise.
I will be giving you the instructions about which muscles to tense up and to relax; generally, we will repeat each muscle group so that we have done each twice. Let me show you the general process; just watch me for a moment. So what I'll say is tense up your right hand into a fist, and you would be doing it like this...and then relax that hand like this...and then we'll go to the left hand, so tensing up like this, holding the tension and noticing it, then releasing it...and then we will move to the right upper arm, the bicep, and you would be told to tense it up by bending your arm at the elbow, sort of flexing the bicep, the upper arm like this, then relaxing it and letting the arm lower back down to the arm of your chair.

The process of learning muscle relaxation will be gradual and will require regular practice. Please remember that it is a skill, so it may feel odd at first. By oddness, I mean that some discomfort may occur during the relaxation process. You may experience some floating, warming, or tingling sensations that are typical for some people learning muscle relaxation. Please be aware that these sensations are quite normal. Also, if you feel discomfort, feel free to move your body into a more comfortable position. Before we begin the muscle relaxation lets do a quick check on how relaxed we are feeling now. On a scale of 0-100, how relaxed do you feel (put on whiteboard).

That's really the general idea, do you have any questions? If not, let's make sure you take out your contact lenses if you wear them. And have you had any physical injuries

so that a muscle group might give you problems if we tense them? Any medical problems like high blood pressure, a heart condition? Let's have you all settle back as comfortably as you can, close your eyes so that you won't be distracted, and now we will begin with instructions for you to follow. We will be first having you tense up, then relax each muscle group, step by step, just as I showed you. The trick is to pay attention to the contrast between how your muscles feel when they are tensing up and how they feel when you relax them. So we will start with the right hand, clench your right hand into a fist tighter and tighter, and study the tension as you do so. Keep it clenched and feel the tension in your right fist, hand, forearm.... and now relax. Let the fingers of your right hand become loose, and observe the contrast in your feelings between the tension that was there a moment ago and the gre
now...Now, once more, clench your right fist really tight... hold it, and notice t tension again... Now let go, relax: let your fingers straighten out, ... and notice the difference once more... O.K. we'll leave the right hand and attend to the left hand... Clench your left hand into a fist... very tense, very tight...Clench that fist tighter and notice the tension... and now relax. Again notice the contrast... Repeat that once more, clench the left fist, tight and tense... Now relax your hand. Continue relaxing like that for a while, both hands and fingers becoming much more loose and relaxed.

Now we'll leave both hands comfortably relaxed and move to the right bicep. Bend your right arm at the elbow to tense your right bicep, the right upper arm... Tense them harder and study the tension... All right, straighten out your arm, let it relax and feel the difference again between tension and relaxation – the absence of tension...Let the relaxation develop...Once more, tense your right bicep, hold the tension and observe it carefully... Now, straighten the arm and relax: let your arm move to a comfortable position. Let the relaxation proceed on its own.

All right, now we'll move to the left upper arm, the left bicep... Tense up the upper arm by bending you left arm at the elbow, very tight, very tense... feel the tension in the bicep and the upper arm... this is muscle tension... All right, now release the tension: let your arm return to a comfortable supported position, and notice the relaxation... a greater sense of relaxation in the entire left upper arm... Now once more, tense up the left upper arm right now, very tense, very tight... and notice the

tension. This is how tenseness feels... Now relax the arm, letting the tension be replaced by relaxation, and let your arm move to a comfortably supported position.

So, right now, you can notice the increased sense of relaxation in the right hand... and the fingers of the right hand.... And the right forearm, and also the right upper arm.... Similarly, relaxation in the left hand ... the fingers of the left hand.... The left forearm, and the left upper arm... very relaxed in both hands and both arms...

- At the completion of the hands and arms introduce the use of the **deep breath**
"All right, to further increase the level of relaxation, let's have you take a slow, deep breath right now...and as you do that a couple of times, use t
further increase your control over relaxation...In the future, whenever you want quickly retrieve the relaxation, you can use this deep breath technique."

Now we'll leave both hands and arms comfortably supported and shift our attention to the area around the head.

Relaxation of Forehead, Eyes, Facial Area, Neck, and Shoulders

We'll start with the forehead. In order to tense up the forehead, I'll have you wrinkle up your forehead right now: wrinkle it tighter... like you're frowning...tense and tight... Now, relax the forehead and smooth it out. Picture the entire forehead becoming smoother as the relaxation increases... Now, frown once more and wrinkle your brows and study the tension.... Very tight... Now, let go of the tension and smooth out the forehead once more ... Now we'll move to the eyes... close your eyes tighter and tighter... feel the tension... Now, relax your eyes: keeping your eyes closed, but comfortably relaxed and notice the sense of relaxation... All right, once more, close your eyes really tight, and notice the tension...tight and tense... and now relax let the tension disappear and be replaced by a greater sense of relaxation, while your eyes are comfortably closed... much more relaxed... O.K., we'll now move to the rest of the facial areas by having you clench your jaws... bite your teeth together; study the tension throughout the jaws... All right now, relax your jaws... notice the relaxation all over your face...your forehead... your eyes, lips, and jaws... Now once more, bite your teeth, clench your jaws and the entire facial area...Let the relaxation

proceed on its own to cover the forehead, the eyes, the jaws, the entire facial areas... Now attend to your neck muscles. Press your head back as far as it can go and feel the tension in the neck...Now let your head return forward to a comfortable position and notice the relaxation. Let the relaxation develop further... Once more, press your head back and notice the tension... All right, now relax the neck and let your head return to a comfortable position... Now, we'll move to the shoulders... Shrug your shoulders, right up. Hold the tension... Drop your shoulders and feel the relaxation... let the relaxation increase in the neck and shoulders... shrug your shoulders again. Feel the tension in your shoulders and upper back... Now drop your shoulders once more and relax. Let the relaxation spread deep into the shoulders, right into your back muscles; relax your entire facial area. Now we'll move from the head
upper body.

Relaxation of Chest and Shoulders

Breathe easily and freely in and out. Notice how the relaxation has increased across your body... as you breathe comfortably, just feel that relaxation...Now inhale deeply and hold your breath. Study the tension...Now exhale, let the walls of your chest grow loose and push the air out automatically. Continue relaxing and breathe freely and easily. Feel the relaxation and enjoy it... Now breathe in deeply and hold it again.... That's fine, breathe out and appreciate the relief. Just breathe normally... Continue relaxing your chest and let the relaxation spread to your shoulders, your neck, your facial area, and your arms. Merely let go... and enjoy the relaxation. Now let's pay attention to your abdominal muscles, your stomach area. Tighten your stomach muscles, make your abdomen hard. Notice the tension... and relax. Let the muscles loosen and notice the contrast... Once more, press and tighten your stomach muscles. Hold the tension and study it... and relax. All right, we'll now move to your legs and feet.

Relaxation of Feet and Legs

To tense up your legs and feet, press your feet and toes downwards, away from your body, so that your body, so that your calf muscles become tense. (to avoid cramps, make this brief).... All right, now relax, allow the relaxation to proceed on its own...

Now, once more, press your feet and toes downwards, away from your face, so that your calf muscles become tense. Study the tension… O.K., now relax your feet and legs.

Now you can become twice as relaxed as you are merely by taking in a really deep breath and slowly exhaling. Take in a long deep breath and let it out very slowly, using that method to become as relaxed as you would like to be. In the future, we'll use this deep breath as a quick signal to achieve relaxation… Once more, take a deep breath and flow the relaxation across your body… relaxing your hands and arms… your facial area… the muscles of your neck and shoulders… your stomach… and both legs and both feet.

Use of Relaxation Scene

In a moment…I'm going to have you turn on the relaxation scene that we have just worked on in this session…recall the exact situation and the feeling of being completely relaxed…see the colors of where you are…

So right now, switch on that scene…
Client signal…As soon as you are in that scene, really being there and experiencing it, I want you to signal to me by raising your hand…
End signal…ok, right now I want you to turn off that scene and return to relaxing.

Review of muscles

"Now pay attention to the various muscle groups. Continuing to relax the right hand…the right forearm…and the upper arm…retaining the sense of relaxation in your left hand…
Take another deep breath once again to further increase the relaxation, becoming as relaxed as you wish to be….
Ok, in a moment I'll have you switch on the relaxation scene again…so right now switch it on….

End of relaxation

"In a moment I'm going to have you move your fingers around a little...so right now do that...and then I'll have you move your feet around...right now...ok, when you are ready, open your eyes, retaining the relaxed feeling as long as you wish, but being alert and refreshed.....all right, lets have you all open your eyes right now, feeling refreshed and alert and relaxed...".

C) Review and Planning

1) Review of the relaxation exercise

- How well did they achieve relaxation? Put on whiteboard the post relaxation scores...difference? What parts of the instruction were helpful? What degree was the deep breath able to cue relaxation? How vivid and controlled was the relaxation scene?

2) Homework – practice tension-release relaxation procedure

"For homework, I want you to practice the tensing relaxing procedure we used today. Pick a time you can protect, reserve about one hour to yourself, where you know you won't be disturbed your disrupted. It should be a time when you won't be thinking about rushing to some other appointment afterwards, so you can devote your entire attention just to the exercise and not be worrying or planning other things to come later.

You should also pick a place for doing the relaxation that is comfortable. Perhaps on your bed in your bedroom; or if you have a comfortable recliner. As with our sessions you should have comfortable clothes on.

Then simply make yourself comfortable, take out contacts if you wear them, close your eyes, and go through the tensing and relaxation exercise. Use about the same pace as we did; the important point is to tense enough to notice how the tension feels, and then relax. You will not need to use the relaxation scene. But remember to take those deep, slow breaths at the end to further the relaxation. About three of these.

I want you to practice the relaxation; it'll actually take about 30-45 minutes each time. You should practice everyday before we met again. I'm also going to give you some logs to fill out that I'll explain later.
Do you have any questions? Ok, we will go round and see what would be a good time of the day or evening for you to set aside for the relaxation, and also where you think you will be able to do the relaxation?

3) Explanation and importance of filling in relaxation log accurately

"You should fill out this log about how the relaxation went at home. The first column is about the time, the second about how long you took...then
seem easier to relax, and those where maybe you had some left over tension (th
might not be any to report)...then write in the level of the tension before you did the exercise and the level after...using this scale below with 0 meaning no tension at all, and 100 meaning you were really uptight, really quite tense".

4) Write your own relaxation scene on a card for the next session

" I would like you to write down the relaxation scene that you have come up with today onto this card....we might have rushed you a bit today in terms of the exact details of your scene, so think about your relaxation scene over the next couple of days, and then write it down.

5) Write your own anxiety-producing scene and put it on a card (moderate level)

I am also going to get you to try and write your own test anxiety scene on a card for homework. The purpose of you thinking about this at home is so we can save time in our next session. It doesn't have to be perfect, and if you get stuck, then write down as much as you can and we will go over them next time.
As with the relaxation scene, the anxiety scene should be a real incident with both scene setting and feeling orientated information. In this case the feeling orientated information involves your test anxiety reaction as well, i.e. your thoughts, feelings and bodily responses to the anxiety (heart racing etc.). The scene should be associated with moderately high anxiety levels. So it is not the most anxiety-provoking situation

you have been in, but it is still quite anxiety provoking. It may be an idea to list the situations you have encountered test anxiety and rank them from most anxiety provoking to the least anxiety provoking. On a scale of 0-100 where 100 is maximum intensity, this scene should be about 60. To ensure that your anxiety scene stays at level 60, it is important that your scene be time-limited to an event of a few moments, rather than a lengthy sequence. This will ensure the scene does not get out of control or shift from a segment that started as moderate anxiety but moved into a very intense level.

Each of your test anxiety scenes will be individual to you, but I will give you this anxiety scene to look over at home so you have an idea about how specific the content should be. Notice how it includes both thoughts, feelings an
reacting.

"I'm listening to my spouse who is angrily blaming me for something that is not quite clear yet…I've stepped in the front door, a week ago, after work…and I'm thinking 'What in the world did I step into!" Now she's boiling over and it turns out that I had forgotten to meet her for lunch and she had been waiting, alone and embarrassed. I can never handle her anger, even when she's wrong, and this time the anxiety washed over me…I'm thinking 'Good God, how could I do that, will she ever forgive me?'…my stomach is knotting up and I want to leave and run away…I keep thinking 'She doesn't love me anymore, I'm going to have a terrible evening…I don't know what to say, should I apologize, but it won't matter since I'm wrong…Should I turn away and ignore her…that'll be worse…this is going to last all night…I can't stand it…I have this crushed feeling inside, like bile in my stomach and inside I'm shaking…"

Session Two – 1 hour session

A) Session Goals

1) Clarify and go-over tension-release from homework
2) Show the participants relaxation without tensing
3) Go through a test-anxiety inducing scene followed by relaxation
4) Emphasize importance of practice and relaxation log

B) Session Procedure

1) Group discussion on tension-release relaxation. Problems they encountered at home, questions and sharing of experiences

Each go around and share how they progressed in their relaxation at home. Is the log filled in? What parts of the body were the easiest/hardest to relax?
It is important to keep filling in the log honestly, so that we can monitor your progress through out the sessions. Because we are moving onto more exercises with relaxation it is important that you complete your practice at home – otherwise you will not be ready to move on with the group to the next stage. Also chec
relaxation scene on a cue card.

2) Development of a test anxiety-producing scene (moderate level)

Get into pairs and share their moderate level anxiety scene development. Make sure it is time-limited, was a real event, and has thoughts, feelings and somatic responses. Check each person's and make sure they are usable.

"So now you are ready to move onto the next step of anxiety management training. We will have a break soon for 5 min to give you a chance to have a stretch, then we will go into relaxation without tensing, since you have all been doing so well. After you are relaxed we will have you switch on your anxiety scene, using it to experience anxiety. When you have retrieved the anxiety, I'll give you the instructions for relaxation again, to eliminate the anxiety. I will wait till everyone in the group's hand is signaled, and then I will give instructions for the anxiety scene. We will repeat this a number of times, and then talk about what happened and the homework assignment. Any questions?

3) Break (5mins)

4) Relaxation without tensing

Settle back comfortably. Close your eyes so you won't be distracted...Now start focusing on relaxing the various muscle groups, starting with loosening up the fingers of the right hand... increasing the relaxation there and throughout the entire right hand.... and flowing that relaxation to include the right forearm... and now, the right upper arm...

And now also attending to relaxing the fingers of the left arm... the entire hand... and increasing the relaxation to include the left forearm... and now the left upper arm... so much more relaxed and tension-free in both hands... both arms...

Take a slow deep breath and slowly exhale, using this method to further the relaxation process....then returning to breathing normally...

Now, while the hands and arms are relaxed, we'll have you focus on loosening up the forehead...letting any tensions remove themselves, to become wrinkle free...smoothening out the forehead area... and flowing that relaxation across the eyes ... and the entire facial area, including the lips and the jaws...much more relaxed, and tension-free in the whole head and facial area...

Spreading that relaxation across the neck and shoulders... letting the muscle tension be replaced by a greater sense of relaxation...

And continuing the relaxation across the chest... the stomach... and both legs and both feet... much more relaxed...

Take another slow deep breath, and use this to again remove any last tensions... slowly exhaling and feeling that tension just leave your body... then returning to breathing normally again... so much more loose, relaxed in your entire body...

5) Anxiety induction followed by relaxation control

In a moment...I'm going to have you turn on the relaxation scene that we have just worked on in this session...recall the exact situation and the feeling of being completely relaxed...see the colors of where you are...

So right now, switch on that scene...

Signal to me by raising your right hand if you have reached a reasonably comfortable level of relaxation" – wait for all hands...

Onset of anxiety scene – In a moment, I'm going to have you switch on your ; scene that you have associated with tests. When you do that, put yourself right back in that situation, really be there again, and use the scene to really re-experience that anxiety again. As soon as you experience the anxiety, I want you to signal to me...Wait 10-15 sec's from signal...That's fine. Let that scene disappear, let it go and switch on the relaxing scene. Remember how your body feels when relaxed, the smells and colors around you, the feeling of total peacefulness. Continue to stay in this scene and using it to retrieve the relaxation ...use your deep breath to further increase the relaxation...signal to me when you are relaxed

Ok, I see everyone's signal. Switch off the relaxation scene, continue to relax. Pay attention to the relaxation of the muscles, noticing the relaxation in the right hand and forearm... the right upperarm etc... Again, use the deep breath for furthering the relaxation. – Muscle review should take 3-4 minutes for a complete retrieval of the relaxation

Repeat instructions from before, with exposure being retained for 20-30 seconds. No delay between ending of the muscle review for relaxation and the next repeat of the anxiety scene and anxiety arousal.

C) Review and Planning

1) Review the relaxation exercise

- Success of client achieving relaxation
- The ability to achieve anxiety arousal
- The accomplishment of later relaxation control
- How readily clients could re-experience the anxiety arousal

2) Homework

1) **Relaxation WITHOUT tensing. Daily.**

" The relaxation that you have practiced at home is working well; and it seems you were able to relax today quite well. So, what you will do before we meet again is to practice the relaxation, again daily, but this time without tensing the muscles. Just get to your quiet location , set about an hour aside when you won't be disturbed, and go through the relaxation review. Close your eyes, and let each of the muscle groups relax themselves as we did today when we reviewed each muscle group after the anxiety scenes. Remember to practice the deep breath technique too, using it as many times as you can so that it becomes a quick method for triggering off the relaxation for you.

2) **Emphasize to participants not to use the anxiety scene at home**

" If you feel that it is going to be especially useful, you can use your relaxation scene, but this isn't necessary. Do NOT use the anxiety scene at all.
In addition to practicing the relaxation once a day in a quiet place at home, I want you to do some quick relaxing outside the home as well. This would be when you are in a setting in your daily life when you have a minute or so. For instance, if you ride the bus, you could take a moment to do the muscle review and relax yourself. Or if you are in a movie waiting for it to start, or waiting for your order to arrive in a restaurant. It only should take a minute or so. Set yourself the goal of doing this at least once daily. This will enable you in the future to rely more and more on bringing on the

relaxation in settings outside of your home, so you can use the relaxation to deal with anxiety in different types of settings. So this is another important step towards the goal of being anxiety-free.

3) **Emphasize relaxation log**

- keep filling in the relaxation log. This is very important so we can monitor your progress, and so you can move on to the next stage with the group.

Week two

Session three – one hour session

Session Goals

1) Review homework and problems associated with it
2) Participants to have control over their initial relaxation
3) Practice anxiety induction followed by relaxation
4) Clients to become aware of the early cues of anxiety

Session Procedure

1) Discussion on homework.

-Problems in relaxation are critical in reporting at this stage, so an in-depth discussion on problems, and suggestions for improvements will be critical

- Relaxing without tensing
- Did they use the relaxation scene or deep breathing?

2) Clients introduced to initiate the relaxation process, and to signal by raising their hand when they are reasonably relaxed

This session we will have you start with initiating the relaxation yourself and without my instructions since we are making good progress here. Then we will be doing pretty much what we did the last session, using the anxiety scene to help you experience the anxiety and then relaxation to eliminate the anxiety as a self-control procedure. The

difference is that I will have you pay attention to how you experience anxiety, or warning signals of anxiety, while you are in the anxiety scene.

- Ok, sit back comfortably, close your eyes so you won't be distracted. Now using whatever method works best for you, initiate the relaxation. And when you're reasonably relaxed, signal to me by raising your right hand...again I will wait till I can see everyone in the group's signal before continuing.

3) Participants shift to the relaxation scene

- Upon receiving the client's signal...
Relaxation Signal – ok, I see your signal. Just continue the relaxation across yo body...flowing the relaxation in the right hand...right forearm...right upperarm...etc. (3-5 mins)

Deep Breath – Take a couple of deep breathes as your method to further increase the relaxation (20 secs)

Relaxation scene – In a moment, I'll have you switch on the relaxation scene, the one you have associated with a total feeling of calmness and relaxation...all right, right now, switch on the relaxation scene.... As soon as you are in this scene signal to me.

Scene Signal – ok, I see your signal...switch off the scene, continue the relaxation flowing across the body. (one minute)

4) Anxiety scene introduced, and participants encouraged to stay with the anxiety and experience it (30-40secs)

Anxiety Scene onset – In a moment I'll have you switch on the anxiety scene, as soon as you experience the anxiety again, signal me. It is the scene involving you being anxious about tests...remember to really be there in that scene and to allow the anxiety to really build...

Anxiety Signal –Client to signal anxiety – ok, I see your signal, now stay in that scene and let that anxiety really build, and notice how you experience the anxiety (30 secs)....it might be in your body such as your neck or shoulders tensing, or your heart rate, or in your stomach, or in your chest, or in your feelings....Just notice these signs that tell you that you're anxious. Let the anxiety build...

5) Anxiety scene turned off, and relaxation scene introduced again until relaxation is signaled

Anxiety Scene off - all right lets have you turn off the anxiety scene and switch on the relaxation scene, the one where you are calm and peacef
feel the calmness and imagine you are in that scene...signal to me when you are relaxed...

Relaxation Signal – All right, I see your signal. Continue the relaxation, take a deep breath to further establish relaxation control.

Relaxation Review – Switch off the relaxation scene and continue the relaxation. Focusing on the relaxation in your right hand...forearm. Etc.

REPEAT – anxiety arousal, maintaining anxiety, return to relaxation scene, relaxation muscle review...till time permits.

Review and Planning

1) Discussion of the early signs of anxiety experienced

The signs of anxiety arousal are discussed – i.e. the early warning signs of building anxiety (hands clench etc.) ...discuss cues that will warn the clients in the future that tension is building and that self-initiated relaxation would be appropriate to use as coping.

2) Discussion on how well the self-initiated relaxation worked

-Gather info on how well the self-initiated relaxation worked, and what techniques the clients used (i.e. deep breath or relaxation scene).

- Discuss readiness with which anxiety induction occurred and the return of relaxation control.

Home-work –

1) Daily self-initiated relaxation outside the home (in situations of minor stress)

Until we meet for our next appointment, continue your practicing the relaxation without tensing; you're doing so well now that you should be able to use the relaxation method to keep yourself under control if you experience any anxiety from some minor stress situations. Certainly, keep watching some of your early warning signals that tells you that stress is building at any time. As s
sure to use that relaxation.

2) Write a high-intensity anxiety scene on a card (severe) for next session

What we are going to do for homework is to develop a new anxiety scene, one that is a severe level intensity. Then we will alternate this scene with the moderate level one to arouse the anxiety in our next session.

Ok, so we will use the same process as we did for writing the moderate level scene. Remember, it has to be reality based, detailed, involving scene setting and feeling orientated information – so you might actually be in a test for this scene...whatever scene you associate with high anxiety will be fine. Put in on a cue card for the next session.

3) Continuation of the relaxation log

Continue with the relaxation log as before

Session four – one hour session

A) Session Goals

1) Review of self-initiated relaxation

2) Further develop self-initiated relaxation in terms of when to end the anxiety scene and to return to relaxation
3) The identification and use of a high-intensity anxiety scene

B) Session procedure

1) Discussion of the homework and review of experiences with self-initiated relaxation outside the home

-Review the client's ability to relax at home and relax in other settings.
-Recognition of early warning signs of anxiety – any new si
- Check over everybody's anxiety scene to make sure it has all the right elemer

2) Client instructed to initiate relaxation – the use of a relaxation scene is discontinued

Introduction – In this session, we will alternate the severe level anxiety scene we have just worked on, with the moderate level scene to arouse the anxiety. The major difference is that I will start the scene, and you use it to re-experience the anxiety and to pay attention to the early warning cues. However, when you are ready, you make the decision, switch off the scene yourself and return to relaxation control. For signaling, I'll have you raise your hand when you have become anxious and keep it up while you are retaining the anxiety. Then lower your hand when you have regained relaxation.
Note – we will not be using the relaxation scene anymore. You should be able to achieve relaxation through deep breath and relaxing the parts of your body.

3) Relaxation exercise

"Sit back in a comfortable position, close your eyes, and begin the relaxation, using whatever method works best for you. Signal me when you are reasonably relaxed"

4) Anxiety Induction and Relaxation Control

Signal Relaxation – "Ok, I see your signal. Just continue to relax, by flowing the relaxation through out the body…using some deep breaths to further increase the relaxation (pause)..

Anxiety Signal Instructions – In a moment, I'm going to have you switch on the anxiety scene, the 60 level one that we have imagined before, to arouse anxiety, then whenever you wish, you will switch off the scene and reinitiate the relaxation, using whatever works best for you. When you are in the relaxation scene, pay attention to how you experience anxiety, the early warning signs. For signaling, remember, this time you will raise your hand as soon as you are experiencing the anxiety, and keep it up as long as you are anxious. Then lower it when you are re
Anxiety Onset - all right, switch on the anxiety scene, the 60 level scene, letting anxiety build, then reinitiate the relaxation when you are ready. Signal by raising your hand when you are anxious, and lower your hand when you are relaxed again (pause).

Relaxation – ok, I see your signal. Continue the relaxation by flowing it throughout your body. Take a couple of deep slow breathes to further increase the relaxation.

Anxiety Onset (90) – In a moment we're going to have you switch on the anxiety scene again, this time the 90 level scene that we have just written. Once more, after you switch on the scene, let the anxiety build, paying attention to the early warning cues, and when you are ready switch the scene off, and retrieve the relaxation, using whatever works best. For signaling, hand up when you are anxious, then lower when you have retrieved the relaxation. Ok, right now, switch on the 90 level scene and really experience the intense anxiety."

Repeat cycle - as long as time permits.

If the clients are struggling to regain relaxation then go to the muscle review

"Just turn off that 90 level anxiety scene…and focus on the relaxation, just as you did before…taking a deep breaths to gain overall relaxation…then letting each muscle group become relaxed…the right hand…the right forearm…the left hand…the left forearm…letting the relaxation replace any signs of tension that's left…taking a few

more deep breaths to help the relaxation process...and signal me when you're reasonably comfortable again..."

C) Review and Planning

1) Discussion on the ability of the participants' relaxation control over the 60 level and 90 level scene. Methods used by the participants to achieve relaxation.

-Check out the participants' improved ability to reestablish relaxation control over the moderate level scene as well as the severe level scene.
-Information on what methods the client's are using to retrie
any new warning signals that may be identified.

Homework

1) time monitoring and situational monitoring

"Continue the daily relaxation at home as well as at least once daily in your daily life. Remember to keep completing the relaxation logs. Now I also want you to continue to carefully watch your stress signs, those early warning signs that tell you that you are coming under stress. There are two ways I want you to systematically do this. About every three hours I want you to take a quick scan of your early warning signs; just to check if you are detecting the early signs of stress. If you notice any, then use your relaxation coping. We'll call this TIME MONITORING. So maybe once in the morning, once in the afternoon, once in the early evening, and once in the later evening, do a quick scan, a quick check.
In addition, I want you to be attentive to whether your daily schedule has something, which tended in the past to be a stressful activity. If so, just before you get to that activity, take a quick scan again of your early warning signs...if you detect some stress , do the relaxation and gain control before you enter that activity. We will call this SITUATIONAL MONITORING.
So, do the daily relaxation, complete the relaxation log, and do the time monitoring and situational monitoring. Questions? "

2) Review of the early warning signs from session three.

These are persistent patterns of bodily signs, thoughts, and feelings, which seem to be the early anxiety responses of the client. I.e. hands clenching, shoulders tightening up, self doubt etc...talk more about their warning signs, and write a list of them so they remember what to look out for.

Week three

Session five – one hour session

A) Session Goals

1) Review of homework

2) Give the participants greater responsibility in facing anxiety

3) Participant to remain in the anxiety scene (60) and while still in the scene, eliminate anxiety (as opposed to previously turning off the scene before relaxation)

B) **Session Procedure**

1) Discussion of relaxation log, and success \problems of relaxation in time and situational monitoring.

-The success in relaxation or coping for minor stresses through time or situational monitoring should be noted

-Self-initiated relaxation should be stabilized, and clients able to identify at least one consistently reliable method for achieving relaxation.

2) Introduction

This session will be much like the last. The only difference is that this time, instead of you switching off the anxiety scene before you introduce the relaxation, you will remain in the anxiety scene while you are applying the relaxation control...comparable to what it is like in real life. The signaling is the same: hand up to indicate you are experiencing the anxiety, and hand down once you have regained the relaxation control."

3) Relaxation Exercise

" Get comfortable, close your eyes, and initiate the relaxation, using whatever method works best for you. Signal me when you are reasonably relaxed (about 1 minute)

4) Anxiety Induction and Relaxation Control

Relaxation Signal – ok, I see your signal. Just continue the relaxation for a moment. Flowing it all over your body. Use a couple of deep breaths to increase the relaxation.

Anxiety Instructions – In a moment we will have you use the 60 level scene for anxiety arousal. However, this time, instead of turning off the scene, you'll stay in the scene, and while you are still in the scene, retrieve the relaxation using whatever is working best for you. So while you are still in the scene, eliminate the anxiety...maybe by using the deep breath technique...or some other method that is a fast cue for you...maybe reviewing your muscles and letting them lose their tenseness...whatever has been the method you've found useful in gaining the relaxation control...After you're relaxed again, switch off the anxiety scene.

Signaling Instructions – Signal me in the same way as the last session. When you're in the anxiety scene and experiencing the anxiety, signal by raising your hand, and when you have become reasonably comfortable again, lower your hand.

Onset of Anxiety – All right, let's have you switch on the 60 level scene, the first one we wrote. Let the anxiety build, then while you are still in the anxiety scene, return the relaxation using whatever works best for you. When you are reasonably comfortable again, signal me (pause).

Relaxation Signal – ok, I see your signal. Just continue the relaxing. Switch the anxiety scene off...in a moment we'll have you switch on the 90 level anxiety scene , the one involving a high test anxiety scene....all right lets have you switch on that scene...let the anxiety build , then while you are still in the anxiety scene, return the

relaxation using whatever works best for you. When you are reasonably comfortable again, signal me (pause).

REPEAT cycle as long as time permits.

C) Review and Planning

1) Discussion of ability to regain relaxation control

2) Homework –

" Continue with your relaxation daily at home and outside the home. Make sure you continue with the time monitoring and situational monitoring. The time and situational monitoring should be helpful in preventing you from being faced with anxiety-provoking situations. However, even if something catches you unawares, you have now progressed well enough that you ought to be able to just employ the relaxation coping, even if you do experience some anxieties. Of course, your time and situational monitoring and your responding to your early warning signs might be so good that the amount of stresses in your life might actually now be much more reduced."

Session six – one hour

- Same format as session five so the participants can master the techniques.

Week four

No treatment

Week Five – based on Jackson, Reid, Croft (1982)

Session seven - One hour

A) Session Goals

1) Determine the participants current study methods
2) Inform participants on the guidelines of effective study
3) To set up efficient study habits

B) Session procedure

1) Discussion on the word "study" and what it means to the participants

What does the word study mean to you?
How do you study usually?
What process do you go through? I.e. write notes, read the textbook/notes, memorize information?
What timeframe do you study in?
How do you plan to study?

2) Group talk on study

- group planning on ideal study settings. Brain storming.

3) Read through guidelines of effective study with participants.

A) **Physical Conditions For Study**

1) Lighting – Obviously light is essential for effective study, but its level must be appropriate. Too much light causes glare, which can cause as much eyestrain as does too little light. You will also suffer eyestrain when you study with a reading lamp shining directly on the page and have no other lighting. You need to control the amount and type of light so you can study for long periods of time comfortably.

Normally the best lighting is a moderate power (75-100 watts) on a centre ceiling light. This light should be shaded or not shining directly on your work. A desk lamp of low power (40-60 watts) directed on to your work should also be used. The lamp should be shaded and out of your direct line of sight. During the daytime it is best to study near a window, but you must make sure the sunlight does not shine directly on your eyes

If you are studying in the early evening be aware not to work on into partial darkness. It can sometimes become quite dark before you realise it and you will suffer eyestrain as a result. It is better to turn the light on too early rather than too late.

2) Ventilation – You should try to ensure that there is a flow of fresh air in place of study. Rebreathing the same air leads to lower oxygen levels in the room and an increase in air temperature. This can lead to drowsiness, nausea and headaches, which will reduce the effectiveness of your study. These symptoms can be avoided by allowing a flow of fresh air.

Fresh air can be provided by leaving a window or a door partly open, or by taking a study break for a few minutes every so often and going for a walk outside – leaving the windows and doors wide open, so when you return the room is properly ventilated.

3) Heating - Unless it is either very hot or very cold, your study should not be affected by the temperature of the room you are working in. However your room should be a comfortable temperature and should adjust it with heaters or fans accordingly.

4) Posture and Furniture – It is best to study seated on a firm back chair at a table or desk. You should be able to rest your feet flat on the floor. Your desk and chair should match properly; you may have to raise the desk, use a footrest or put a cushion on your chair. Other positions, e.g., lying on the bed or floor, or sitting in an armchair, are NOT good positions for study, especially if you have to write.

5) Space – The desk or table you use should be large enough for all your books and paper needed to study. It should be clear of other material that could clutter and prohibit you from studying efficiently.

6) Where to study – You may not have much choice in where you study, but you should try and find a place where you can leave your books etc. This will reduce the amount of setting up required when you sit down to study.

A permanent study place is best, and it should be a place where you can study alone. If you are living with your family, areas of the house such as the lounge and dining room are often noisy and you will be distracted by the preser
addition, you are less likely to be able to have a place in the family area where y can leave your work set up. It seems if you study at home, it would be best to use your bedroom or at least a private area that you can use. If this is not possible, use the library facilitates or rooms available at university. Generally, the library is a quiet place that is conducive to good studying. However, there are one or two risks associated with study at the library. First, you will probably meet friends there and there will be a temptation to be distracted by their presence – the amount you learn is not associated with the amount of time spent at the library, rather, the amount of time spent working on your books. Second, visual distractions can easily occur at the library caused by people walking past – sometimes this can be difficult to ignore.

7) Distractions – Both your study room and study time should be free of distractions. This means that telephone calls, jobs around the place, and some background noise can reduce your study efficiency. Some students prefer to study with the radio on or CD's going. As long as this background noise is relatively quiet, a student who is concentrating on their work will not hear it. Conversational noise is much more difficult to "block out", whether it comes from the TV, the radio, or people around the place. This is because this type of noise has meaning to you. It is more important to stop this conversational noise than "meaningless" noise such as a lawn mower.
So, you should aim to have a study area free from noise and visual distractions (esp a TV which provides both). If you really like to study with music on, then chose music

preferably that does not have words, and have it at a low noise level so you can continue to study effectively.

B) Study Times

1) When you should study – The best time to study varies from person to person. Because of this – only a general rule will be given.
Study is best done when the study material is fresh in your mind Hence you should begin any assignments that you have as soon as possible after the lecture or class. This is because the subject matter is easily recalled and thus you will probably find it easier and quicker to complete the assignment – delaying your wor
recall the material.

Studying when you are tired is not efficient. Even if you do not feel tired, study left into the late evening will be less effective than when started earlier. You may find yourself finishing study late, but you should try and never start it then.

You should try to study consistently. By this I mean, study at the same time each day. Regular study times will help you to settle down to study quickly, and thus less time will be wasted.

2) How long you should study – The amount of time you spend studying will depend on a variety of factors, including whether your course is full or part-time, whether you are employed, the type of course etc... As a general rule you should spend an hour reviewing and reading around the information given in a lecture for every hour you spend at lectures. Assignments will take extra time. If you are involved in a heavy course load (that takes say 9-3 each day), your out of class work should make up the balance of an eight-hour day. There seems no point studying for an excessive amount of time (say 16 hours); you require relaxation so when you study, it will be efficient.

3) How can you plan for study? – The key to having time to enjoy yourself and to study effectively is planning. You should plan your study, outside work, social and sporting activities to fit in with each other. The first step to effectively use your time

is to work out a study programme or plan. Draw up a chart with the days of the week and the hours of the day (say 8am-10pm). Shade in the times you are travelling, in class, at work etc..Next enter your other commitments, e.g., sports practice, gym, music, club meetings, meals, cooking/cleaning and the like. Now schedule a time for study for each day of the week. The amount of time you study will depend on your circumstances, but you should work on the guidelines above. Make these times to fit in with your interests, TV etc. Make sure you have allowed yourself enough time to relax everyday.

Even thought the amount of study you do on different days may change, you should keep to the times you have scheduled. If the amount of work needed to do is less than the time you have allocated, still use it to do some extra revi:

4) Keeping to your plan – After spending time developing a plan, many people stop at this point – they do not actually use it. Developing a plan can be a good procrastination technique, keeping to the plan requires a bit of work on your behalf. If you are going to benefit from it, you need to use it, eventually it will become part of your everyday activity.

5) Varying your plan – Inevitably, your plan will change as things 'pop up" that you did not account for. Friends may ring for you to go out, a favorite movie may come on TV that you desperately have to watch etc. If things like this happen, be flexible, but not to the point that your plan becomes worthless. Keep the changes to as little a possible. If you do revise your plan, make sure that the time set aside for study does not decrease – borrow the time required for that movie etc, from a recreational period and "pay it back " later. It is possible to be flexible with your plan but still keep to it.

C) Organization for study

1) Planning your study time – When you plan your study time, you need not only plan WHEN you are going to study, but also WHAT and HOW you are going to study. You need to be specific, e.g. study history - is too general, but "review my notes on the NZ treaty of Waitangi" is more specific.

2) Setting Goals – Plan exactly what you want to achieve in the time available. This means that you set a goal for each study period. Do not set a goal that you cannot possibly attain, as you will just end up feeling dissatisfied. You will have to work out for yourself how much you can cover in a given period. This will depend on how fast you can read with comprehension, the difficulty of the material, and how quickly you can organize your thoughts and settle down. Always try to meet your goals and deadlines, as this will give you a sense of satisfaction. I you miscalculate how much you study you can complete try not to become upset. The next time you set a goal, take your past experience into account and plan accordingly.

3) Breaks in your study time – Breaking up your study wi
than massed study i.e. not taking any breaks for a long time. It is probably best allocate at least one hour for study, breaking at the half-hour point for five or ten minutes. During your break get up, walk around, get fresh air. Relax and forget about your books just for a short while. Do not study for more than 2 hours without a break of about half an hour – long periods of study without breaks will leave you feeling tired which will result in comparatively little being learned. However, it is very important to complete something BEFORE you have a break...you may find yourself thinking "this is too hard" or 'I really need a coffee now" kind of thing, but you need to complete a goal before you reward yourself with a break. This may just be finishing reading the chapter or page, but keep going till you have reached your goal.

4) Subjects to study – There are probably subjects that you either like more, or find easier to study than others. Unfortunately, learning about one or two subjects means that it is at the expense of your other 'harder" subjects. Putting off the study of these subjects only makes it harder when you really need to know the information for an exam etc... So, how do you make yourself work on disliked subjects? You could try one of these 3 methods:

A) The Premack Principle – Say you like studying English but dislike studying Classics. The idea of the Premack Principle is that you deny yourself the enjoyment of studying English until you have done some work on Classics. Begin with only a few minutes work on the subject you don't like before studying the subject you do like, and then gradually increase the time you spend on the disliked subject. If you dislike

studying all of your subjects, you might find another way of rewarding yourself for studying them e.g. watch TV after, reading a magazine etc. The basic principle is to reward yourself for doing something you consider being unpleasant.

B) Vary the order in which you study subjects – Probably you leave the subjects you dislike until last, when you are tired. You could draw up a programme of study in which you vary the order you study each subject. E.g. on some nights plan to work on the disliked subject first – this way you will be alert and your learning will be more effective.

C) Keep to a set timetable – You could ensure that you stuc
setting aside the same amount of time for it as other subjects you study. At the s
will probably be most helpful to read about the subject or try to do examples – do not worry about how much you have learned, just get familiar with the subject. Once you are in the habit of learning about the subject you can then begin to set goals on how much you want to learn in each session.

5) <u>General Rules that apply to all subjects –</u>

A) Concentrate on GENERAL ideas rather than on specific facts. This will lead to a greater understanding of the subject rather than mere memorization of the subject. Moreover, if you initially concentrate on the general ideas it will be easier to remember the facts, which support these ideas.
B) Keep up to date. If you get behind in learning it becomes harder and harder to catch up. This is because the larger the backlog of study the less willing you will be to catch up. It also is important to keep up to date because some subjects rely on you to know information before you can move on to a harder step you are being taught.

6) <u>Organization of materials needed for study</u> - You will not be making the best of your study time if you spend most of your time looking for what you need to use. Even more time can be lost if your notes, folders and textbooks are untidy, disorganized or lost under the depths of papers on your desk.
You should keep notes for each subject separate. Never write notes for different subjects on the same sheet of paper – this will lead to confusion and difficulty in

finding the material that you need. It may also be useful to put flags in your notes to separate topics in your folder for rapid location.

4) Break in session

5) Individuals to set goals for their study over the next week, and establish a timetable for study.

I would like each of you to draw up the skeleton of a study timetable for the week. Begin with placing in activities that have a set time every week, such as lectures, TV programmes, sports, your cooking night etc.
Now schedule a time that you can study each day of the week. Remember that amount of study should equal the amount of lecture time (unless you complete full days, so the total should not be more than 8 hours a day). When you have figured out when you can study, you have to decide WHICH topics you are studying, and the goal of each study time. This will probably have to be something you need to work out when you get home from this session, as your goals need to be specific. Make sure you make realistic goals, and then try to meet them for the entire week. Do not panic too much if you do not meet all your goals...just keep trying to stick to the timetable as much as possible.
It is a good idea to make your goals public knowledge. Tell the people that you live with what you plan to achieve in terms of study that week. This not only means you have set goals for yourself, but you have made a contract with other people to achieve the goals. Write post-it notes to remind yourself...stick them to your mirror, the fridge, the t.v etc...

B) Review and Planning

1) Review of study goals and any concerns

Ok, so is everyone clear on the study goals that you have to set for each session?
Any questions?

Homework

1) Record of adherence to study timetable

Obviously for me to know how effective the use of study timetables are, I am going to have you record your adherence to your timetable. At the end of each day, write down the goals that you had set yourself, and then whether you completed these goals. It might be helpful if you write down the reasons why you did not reach your goal if this is the case. This will help us next time to work out how to make the goals more attainable.

2) Bring something to study for the next session

I would you like you to bring something to study for the next session we have because we are going to work on a method on how to study. The method we are going to learn will help you to read textbooks efficiently – so if you could bring one of your textbooks that you are working on, and we will learn the SQ3R method together.

Session eight –one hour

A) Session Goals

1) Review of the homework
2) Introduction to the SQ3R method of study
3) Practice of the SQ3R method

B) Session Procedure

1) Discussion of the homework and problems that were encountered

Look at the goals that everyone set for themselves, and adherence to their study timetable. Questions - What worked well? What made it hard to keep to? How did the place of study work out? Any other tips for other people in the group that you found made study easier?

2) Explanation of the SQ3R method of study:

1) *Survey what you are about to read*

- Spend a few moments browsing through the parts of the book you intend to read. Take note of the way the material has been organised by the author of the book – the headings used are really the outline of the book. Read the headings and subheadings, look at the pictures and captions, graphs, tables or diagrams that may be there. Finally, if they are provided, read the introduction and the summary. At the end of this survey, you will have a good idea of what is included before you read the text.

2) Question what you are about to read

- As you come to the heading for each section, turn it into one or more questio then when reading the text, try and fin the answer to your questions. E.g., the heading " The Treaty of Waitangi" can suggest several questions: What was the treaty? What was it for? Was Waitangi significant? What did the treaty achieve? Was it successful...etc. The answers to these questions are likely to be in the section under this title. You have a reason to read the section, your interest has been aroused and hopefully you want to know the answers to your questions!

3) *Read the Section*

- Since you have completed the first 2 steps of the SQ3R method, the amount of time you spend reading will be reduced. Only during this stage do you read the words in this section. However, don't just recognize the words; search for the answers to the questions you have posed. If the text refers you to an illustration spend some time studying it – as it may help you understand the text more fully. Sometimes sections will contain information that is different from the heading suggests. Watch out for this. Generally there is only one main idea in each paragraph, and it will be expressed usually within one sentence of that paragraph. This is called the topic sentence – the other sentences support, or expand on, the main point stated in the topic sentence. You should of course take care to note main points which answer questions you have NOT posed.

4) *Recall the main points you have just read*

-After reading each section put the book aside and try to recall the answers to the questions you posed at the beginning. Also try to recall other important points which you read. If you practice recall by noting main points IN WRITING, you will have a permanent record of what you have read. It is important to recall the main points in your own words where possible. Make sure you are correct by rereading the topic sentence. If you can't remember accurately reread the entire section and then try and recall it. Repeat steps 2, 3 and 4 for each section until you have read all the material previewed in the survey step.

5) *Review the main points of your reading*

- After you have read the material you surveyed in step one,

end of the time you have available, stop and review all you have read, not only most recent section. In this way you will consolidate your learning of the material. If you have taken accurate notes during the recall step, you will be able to check the accuracy of your review without rereading all the material.

Although you may spend more time reading the material using the SQ3R method, your understanding will be better than it would be if you used the normal "reading-straight-through" method. You will find that only very short revision sessions are needed to maintain this level of knowledge – in the long term you will save time and effort.

I would now like everyone to get into pairs and practice the SQ3R method with the material you have bought to class. Survey the chapter, question the headings – write your questions down so your partner can check you have in fact turned them into questions, read the chapter and then recall the main points verbally (with partner)...finally review the chapter and check your knowledge base.

2) Note taking - discussion on note taking

A) *When should notes be taken*

-When reading or listening to new material. Notes from textbooks will reinforce points made in class

-When in class or lectures. Lecturers may tell you what note notes should be made or they may hand out prepared notes. However, the responsibility for taking notes is your own, so you must develop adequate note-taking skills.

b) *What you need for taking notes*

-Loose leaf pad – allows for flexible organization

-Separate files/binders for each subject – avoids confusion

c) *How many notes should be taken?*

-Depends on the subject – more notes for a theoretical subject.

-Minimum requirement is all the points your instructor tells

-Add any points you think are important – you must learn to judge what is impc as different lecturers have different ways of showing emphasis.

d) *Notes taken in class or lectures...what should be included*

1) All the main points – You can't know all you need about a topic if your notes don't contain all the important points. Note how the lecturer has organized their material and follow this to give a guideline.

2) Include information, NOT just headings – don't just write the outline of the lecture in terms of headings. You need to write specific information underneath the headings.

3) Include diagrams/illustrations – If the lecturer illustrates a point with a diagram, copy it down. This may help you understand the material later.

4) Write down definitions exactly – It is likely that definitions need to be quoted accurately, so record them word perfect if possible.

5) Include important dates, figures etc – although important to concentrate on general ideas you must also know specific facts to be able to give examples in exams.

6) Omit minor details – Interesting but unimportant details will clutter your notes and consume your study time.

7) Use your own words (except for definitions) – The more you use your own words the more you will learn and understand. This is because you had to think about what you have written.

e) *Notes taken from books*

1) Only important points and important supporting details should be noted.

2) Do not take too many notes- you will find it difficult to identify the important points from the unimportant ones when you are revising.
3) Use your own words – as with the lecture notes.
4) Use the structure of the book or of class notes as the basis for your notes – Fit the new ideas you gain from a book into the notes you already have from class.
5) Combine notes from books and class – combine the notes you take from different sources to view the whole picture of a topic. Study time will be saved, as all the material will be together.

f) *Organization of notes*
1) Structure – use a format that is easy to follow. Use numbe
subheadings, different colored pens etc. Develop a system that is logical and cl
follow when you look back at these notes close to an exam
2) Show lecturers emphasis – so you know for sure which are the main points form the lecture, highlight them in some way. Perhaps underline that heading or put an asterix beside it.
3) Develop personal shorthand – if you find some long words occurring regularly develop a way to record this shorthand. I.e. psychology may become psyc. Don't overuse shorthand, as too many abbreviations will lend to more confusion than it is worth.
4) Space notes out – so they are clear to read, and so you can add additional information if needed

g) *Editing and Reviewing Notes*
- Review and edit notes as soon as possible. This allows you to make sure they make sense and you have all the major points needed.
- Write short summaries – when you are learning the material from your study notes it is not necessary to write all the notes out again. Condense the notes as you learn but make sure you can remember what goes under each heading.

3) Paired study practice of the study material bought to class.
I would like you to work in pairs again to practice writing notes from the textbook. Remember to use heading and identify important parts of the chapter.

C) Review and Planning

1) Discussion of the application of the SQ3R method

Questions: How did it go? When you reviewed the section, did you recall some or all of the information? What was hard about the technique? Foreseeable problems?

Homework – 1) Adherence to study timetables and practice of SQ3R method where appropriate. I would also like you to record not only if you kept to the timetable, but also the method of study you were using. Record HOW you studied.

Week Six –

Session nine – one hour

A) Session Aims

1) Review practice of the SQ3R method and study time-table adherence
2) Teach participants test-taking skills
3) Integrate relaxation and examinations

B) Session procedure

1) Discussion of homework exercise and clarification of SQ3R method

Check out the method of study used, timetables etc

2) Discussion of the recommended examination techniques

Today we are going to discuss examination techniques that may be useful for you to know.

1) *When an exam is announced*

- Find out the details. How many questions will there be? What type of questions will be asked e.g. multiple choice, essays or short-answer? Find out the format of the exam i.e. will there be a choice of questions or must all be answered? Lecturers should provide you with all this information as it is only fair that you know in general terms what is expected of you.
- Use old exam papers. If possible, get hold of previous exam papers for that subject and try to answer them. This will give you an idea on how the questions are

likely to be phrased and what has been assessed in the previous years. You should be careful however because sometimes the syllabus may change, and or the lecturer for the course has changed so the emphasis or layout may have changed as well.

2) Set up a study schedule for examinations

You need to set up a plan timetable for study. This will be different from a timetable you may have had through out the year because presumably assignments will be finished and lectures reduced or completed. Start your study programme well before the exam, especially if you have a number of exams, or lots of topics to cover for an impending exam. Make up a timetable like the other one, but you will effectively have more time to study.

3) Studying for examinations

- As with studying for assignments and general course work, you need to be organized. Have all your notes for the different exams separate and all the pens, paper etc that you need.
- You will need to be prepared to VARY the method you use to study. This will result in better remembering and hopefully a greater understanding of the material.

a) - Review you notes by reading...read through your notes you have made without writing anything. Do this more than once, perhaps use the SQ3R method for reading - make sure you are concentrating or you are wasting your time.

b) - Review your notes by writing...As you read through your notes take shorter summaries or jot down headings - writing down helps consolidate memory. Remember you must think about what you are writing down, not just copying without thinking.

c) - Skim through your relevant textbook...If you have taken a combination of good notes from the lecture and text, then skimming through the textbook should be sufficient.

d) - Think of the questions you may be asked...Try to answer questions that occur to you. If the exam is in essay format, answer it in outline form when you are preparing for the exam - do not write a full essay.

e) - Use of rhymes and mnemonics as memory aids...It may be useful to devise a memory aid to learn information i.e. mnemonic ROY G BIV for the colors of the

rainbow. Don't overuse these, as you will easily become confused with which mnemonic belongs to what topic etc.

Use of Relaxation Skills

When you are preparing to enter an examination, remember to be aware of the early signs of anxiety that we discussed in earlier sessions. This could be...sweating palms, racing heart etc... (they come up with what the signs are). When you notice that tension is building in your body (at any stage, whether it be before, during of after the exam) use whatever method has worked best for you...this could be taking a deep breath, visualizing your relaxation scene, or completing a qu
muscles in your body. It is better that you take 5 minutes in the exam to relax a
be able to focus on the questions, rather than remaining in an anxious state.

4) *Examination techniques*

A) Before going into the examination

a) Don't study the evening before the exam except for a brief review of your notes. Make sure you have a good nights sleep - being too tired will hinder your performance.
b) Make sure you have everything you need to take into the exam room with you. This includes spare pens, calculator's etc. Check with your lecturer BEFORE the exam what you need to take for the exam.
c) Plan to arrive to the exam room well before the staring time. This will allow you to relax and settle down a bit.
d) Wear a watch if you have one, just incase the room does not have a clock. Time is very important in exams.
e) While a little anxiety is a good sign, try to relax as much as possible. Relax your body, deep breath...

B) When you arrive at the examination room

a) Make sure that your seat etc is going to be comfortable. Don't be afraid to ask to move if the sun is in your eyes, you have a wobbly chair or are generally going to be uncomfortable for whatever reason (if it can be prevented). You don't want to be distracted by your physical conditions.

b) Check the time - is there a clock in the room? Work out the timings for the questions on the clock, or if this is not possible, ask the examiner to cross off the times on the board.

c) Make sure you have blank paper to make outlines of your answers if they are in essay format.

C) When you are given the examination paper.

a) Carefully read the instructions to the exam paper. Any misunderstanding or failure to follow the instructions will result in lost marks. Make sure you know ALL of the following:

- The number of questions in the exam paper
- How many questions in total you must answer, and how many from each section.
- If there are compulsory questions.
- How many marks each question is worth.
- Where your code number or name is meant to be written - very important as they can't give you credit for an unnamed paper!

b) Plan your time carefully. This is very important and must be done accurately. If you do not plan your time it can result in questions being left out or rushed through at the end. No marks are given for questions that have not been attempted.

- The best way to divide your time is not the basis of the number of marks allocated to each question. So, for example, if an exam requires you to answer 6 questions each worth 20 marks (in 3 hours), then you will allow yourself 30 minutes for each question. You can not go over this time or you will then leave another question short.
- Similarly, if you have to answer 4 questions in 3 hours and the first question is worth twice as much as the rest, you should spend 60 minutes on the first question

and 30-40 minutes each on the remaining questions - this may give you time to check over your answers as well.

c) Read the questions carefully. This is essential, as you will not get credit for answering a question that was not asked. It is also crucial to read them carefully when you have a choice of questions - you need to select questions you think you are best able to answer. Make your decisions quickly, tick the questions you can answer well as those you will answer poorly. This helps select questions and also what order they should be attempted.

- Make sure your choice of questions follows the instructions on the top of the paper e.g., one question from section A and two from sectio
- Decide on the order to answer the questions. In essay exams answer firstly those you consider the easiest - this gives you confidence from knowing you have some marks already. When you arrive at a question you do not know, attempt to answer it but do not spend too long on it...move on to other questions.

D) Answering the questions

1) *Essay/Short answer questions*

A) The wording of the question is very important, as this will tell you the emphasis required for your answer. Examples of these key words are compare, contrast, discuss, summarize, and outline. Do not write all you know about a topic - you must structure your answer to fit the question asked.

The following list may help –

Define - give the exact meaning

Analyze/ examine - give the essential features

Compare/contrast – give the main similarities and differences

Illustrate – explain by giving examples

Describe/explain/discuss – give a detailed account of the main features

Outline – give the main features

Review/summarize – give a general account of main features

Trace – give a step-by-step account of the development

List – list the features.

A) Before you begin writing, making an outline of your answer on scrap paper. Put down the main headings and points of your answer. Don't start to write your essays till you know the structure of your answer – the main point of each paragraph.
B) Express yourself simply – do not "pad" your answer with irrelevant facts, but include facts to support your answer.
C) Take care of handing and spelling – this makes answer easier to read for the marker.

2) Multiple- choice exams

A) Make sure you know the method of answering i.e. tickin
line. If a computer is marking the paper, you may not get credit if you mark paper in an incorrect way.
B) Read each question carefully – are you meant to choose the BEST one or the ONLY TRUE and CORRECT one. Be especially careful for questions with double negatives i.e. "Which of these is NOT…" or "All o these EXCEPT." – it is easy to overlook the negative part of the question.
C) Read ALL the alternatives, even if you think the first one is correct – there might be a better answer further on.
D) If you don't know the answer to a question, make a calculated guess (unless marks are taken off for being incorrect). Your guessing should be done by eliminating answers, which you think are definitely wrong.
E) Answer all the questions. Do not leave questions out if you don't know the answer – you might run out of time to go back to them. Make a guess, and then jot down the question number to go back to if you have time.

E) Near the end of the examination

A) Make sure you have attempted all the questions that you had to. It is easier to get the first five marks for a 20-mark essay, than it is to get the last few marks.
B) Check all your answers. Make sure your writing is legible – if you have difficulty in reading and understanding your answer, then the marker will find it even harder.

C) Make sure all the questions are properly numbered. Unnumbered questions may not be marked.

D) Use spare time you may have wisely. If you are going to leave the exam early, make sure you have thoroughly checked over your answers.

F) When your exam papers are returned

A) Look over your paper to check up on where you lost marks. Did you lose marks all on one questions? Did you misunderstand a question? Finding out the mistakes you made, will ensure that you are less likely to do the same mistake next time.

B) Look at errors that you made in content knowledge – did adequate supporting points? If you are unsure as to why you lost marks, talk your lecturer about the "ideal" answer, so you have a framework for next time.

C) Review and planning

1) **Homework** – Continuation of study timetable and use of SQ3R. Reminder that the next session involves a test from sessions seven and eight.

2) **Reminder** that next session is the final session. Importance of returning all relaxation logs and study logs to final session.

Session Ten –

A) Session Goals

1) Participants' completion of mock test.
2) Closure of the group sessions
3) Answer any final questions. Feedback
4) Post-testing

B) Session Procedure

1) **Discussion of the processes that have been involved in the treatment and questions**

Today is the final session that we will all be together. I would like to think that you have all gained some skills and knowledge that will help you both academically and in general areas of your life. Think about the relaxation technique that you learned to control your anxiety surrounding exams. You can use it in those situations where you feel anxious in exams, but also in any situation where you feel slightly nervous or tense. Therefore, the relaxation technique you are now equipped with can be generalized to be used in ANY situation where you feel anxious. The study skill component has helped you to plan your study in an effective
SQ3R method of study, and techniques for taking exams efficiently.
I would like you to write down situations that you think you will use the information that you have been taught in the sessions. This is so you have a reminder of all the skills you have learnt and when you can use them.

1) **Group round**

2) **Mock test**

3) **Post-testing measures**

In order for me to determine if this treatment programme has been useful, I would like you to fill in the measures that you did at the start of the programme. These are the ones about test anxiety, how anxious you generally feel, and study habits and attitudes. It is very important to fill these in accurately – how you really feel. Each of you will also respond to the scenarios on the tape that you may recall listening to during the pre-testing phase.

Appendix H

Study Examination

PART A

The SQ3R method is a technique for studying material effectively.
In short-note form, explain each component of the SQ3R.

Survey

Question

Read

Recall

Revise

PART B

Please read each question carefully and then circle the answer that is most correct.

1) Where is the most ideal place to study?

A) In the family lounge where people relax
B) In a private area where you can permanently leave yc
C) In the dining room
D) Sitting on the couch in front of the television

2) What is the key to studying effectively?

A) Studying all hours of the day until you are exhausted.
B) Leaving all your study until the last possible moment
C) Planning your study with a timetable over a number of weeks
D) Studying late at night after you have had recreation time.

3) Which sentence is the most correct regarding appropriate breaks in your study time.

A) After two hours study you should have 5 minutes relaxation before studying again.
B) Mass study is more beneficial than breaking up your study because you remember the material long-term.
C) Study is best completed in one hour followed by a one-hour break.
D) One hour should be allocated for study with a 5-10 minute break at the half-hour point.

4) Which sentence is NOT correct in the following:

A) A study plan can be changed for a day as long as the amount of study for the week does not decrease.
B) The Premack Principle is based on the notion that you reward yourself for doing something that you consider unpleasant.
C) Lying on the floor is a good position to study because you feel comfortable and relaxed.
D) You are not using your study time at an optimal level if you are constantly looking for material in disorganized folders.

5) Which background noise is LEAST distracting when you are studying?

A) Television
B) Lawnmower
C) Conversations
D) Talkback radio